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GERMAN PEDAGOGY.—GOETHE.

GOETHE.

In the vast and varied literary production of the master-mind of German literature—extending over a period of seventy years of unprecedented activity in discussion, legislation, and administration in every department of the educational field, Göethe found occasion to touch on most of the problems, which occupied the attention of statesmen and educators among his cotemporaries.

Mr. Carlyle, in his Essay in the Foreign Review for 1828, on Göethe, dwells with earnest approbation on the chapters (the tenth and eleventh) of *Wanderjahre*,[*] devoted to the nature, objects, and present ground of religious belief. "They come from the depths of his mind, and are not in their place till they reach the depths of ours. The wisest man, we believe, may see in them a reflex of his own wisdom; but to him who is still learning, they become as seeds of knowledge; they take root in the mind, and ramify as we meditate them, into a whole garden of thought." Forty years later, in his Address to the University of Edinburgh, on the occasion of his installation as Rector (fifty-six years after he entered that city a boy of not quite fourteen), when, with a beautiful enthusiasm, the third generation of his dear old native land welcomed him as 'not altogether an unworthy laborer in the vineyard,' the Rector pronounces these ten pages "the most remarkable bit of writing which I have known to be executed in these late centuries. These I would rather have written, been able to write, than have written all the books that have appeared since I came into the world." Of these chapters, instead of attempting to give them in full, we will here introduce Mr. Carlyle's own version and epitome of them. We must confess to our inability to see either novelty or profundity of the wisdom which Mr. Carlyle finds secreted in them. The old New England schoolboy reverence was of the same type.

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[*] *Wanderjahre* denotes the period which a German artisan is obliged by law or usage to pass in traveling, to perfect himself in his craft, after the conclusion of his Leherjahre (*Apprenticeship*), and before his mastership can begin. Most of the guilds extend help in some shape to the needy wandering brothers, as they travel from city to city, studying their future craft.

CULTIVATION OF REVERENCE.*

We must fancy Wilhelm in the 'Pedagogic province,' proceeding towards the 'CHIEF, or the THREE,' with intent to place his son under their charge, in that wonderful region, 'where he was to see so many singularities.'

Wilhelm had already noticed that in the cut and color of the young people's clothes a variety prevailed, which gave the whole tiny population a peculiar aspect: he was about to question his attendant on this point, when a still stranger observation forced itself upon him: all the children, how employed soever, laid down their work, and turned, with singular yet diverse gestures, towards the party riding past them; or rather, as it was easy to infer, towards the Overseer, who was in it. The youngest laid their arms crosswise over their breasts, and looked cheerfully up to the sky; those of middle size held their hands on their backs, and looked smiling on the ground; the eldest stood with a frank and spirited air,—their arms stretched down, they turned their heads to the right, and formed themselves into a line; whereas the others kept separate, each where he chanced to be.

The riders having stopped and dismounted here, as several children, in their various modes, were standing forth to be inspected by the Overseer, Wilhelm asked the meaning of these gestures; but Felix struck-in and cried gaily: "What posture am I to take then?" "Without doubt," said the Overseer, "the first posture: the arms over the breast, the face earnest and cheerful towards the sky." Felix obeyed, but soon cried: "This is not much to my taste; I see nothing up there: does it last long? But yes!" exclaimed he, joyfully, "yonder are a pair of falcons flying from the west to the east: that is a good sign, too?"—"As thou takest it, as thou behavest," said the other: "Now mingle among them as they mingle." He gave a signal, and the children left their postures, and again betook them to work or sport as before.

Wilhelm a second time 'asks the meaning of these gestures;' but the Overseer is not at liberty to throw much light on the matter; mentions only that they are symbolical, 'nowise mere grimaces, but have a moral purport, which perhaps the CHIEF or the THREE may farther explain to him.' The children themselves, it would seem, only know it in part; 'secrecy having many advantages; for when you tell a man at once and straightforward the purpose of any object, he fancies there is nothing in it.' By and by, however, having left Felix by the way, and parted with the Overseer, Wilhelm arrives at the abode of the Three 'who preside over sacred things,' and from whom farther satisfaction is to be looked for.

Wilhelm had now reached the gate of a wooded vale, surrounded with high walls: on a certain sign, the little door opened, and a man of earnest, imposing look received our Traveler. The latter found himself in a large beautifully umbrageous space, decked with the richest foliage, shaded with trees and bushes of all sorts; while stately walls and magnificent buildings were discerned only in glimpses through this thick natural boscage. A friendly reception from the Three, who by and by appeared, at last turned into a general conversation, the substance of which we now present in an abbreviated shape.

"Since you intrust your son to us," said they, "it is fair that we admit you to a closer view of our procedure. Of what is external you have seen much that does not bear its meaning on its front. What part of this do you wish to have explained?"

"Dignified yet singular gestures of salutation I have noticed; the import of which I would gladly learn: with you, doubtless, the exterior has a reference to the interior, and inversely; let me know what this reference is."

"Well-formed healthy children," replied the Three, "bring much into the world along with them; Nature has given to each whatever he requires for time and duration; to unfold this is our duty; often it unfolds itself better of its own accord. One thing there is, however, which no child brings into the world with him; and yet it is on this one thing that all depends for making man in every point a man. If you can discover it yourself, speak it out." Wilhelm thought a little while, then shook his head.

---

* Carlyle's *Critical and Miscellaneous Essays*. Vol. I, 204.

The Three, after a suitable pause, exclaimed, "Reverence!" Wilhelm seemed to hesitate. "Reverence!" cried they, a second time. "All want it, perhaps yourself."

"Three kinds of gestures you have seen; and we inculcate a threefold reverence, which, when commingled and formed into one whole, attains its full force and effect. The first is Reverence for what is Above us. That posture, the arms crossed over the breast, the look turned joyfully towards heaven; that is what we have enjoined on young children; requiring from them thereby a testimony that there is a God above, who images and reveals himself in parents, teachers, superiors. Then comes the second; Reverence for what is Under us. Those hands folded over the back, and, as it were, tied together; that down-turned smiling look, announce that we are to regard the earth with attention and cheerfulness: from the bounty of the earth we are nourished; the earth affords unutterable joys; but disproportionate sorrows she also brings us. Should one of our children do himself external hurt, blamably or blamelessly; should others hurt him accidentally or purposely; should dead involuntary matter do him hurt; then let him well consider it; for such dangers will attend him all his days. But from this posture we delay not to free our pupil, the instant we become convinced that the instruction connected with it has produced sufficient influence on him. Then, on the contrary, we bid him gather courage, and, turning to his comrades, range himself along with them. Now, at last, he stands forth, frank and bold; not selfishly isolated; only in combination with his equals does he front the world. Farther we have nothing to add."

"I see a glimpse of it!" said Wilhelm. "Are not the mass of men so marred and stinted, because they take pleasure only in the element of evil-wishing and evil-speaking? Whoever gives himself to this, soon comes to be indifferent towards God, contemptuous towards the world, spiteful towards his equals; and the true, genuine indispensable sentiment of self-estimation corrupts into self-conceit and presumption. Allow me, however," continued he, "to state one difficulty. You say that reverence is not natural to man: now has not the reverence or fear of rude people for violent convulsions of nature, or other inexplicable mysteriously foreboding occurrences, been heretofore regarded as the germ out of which a higher feeling, a purer sentiment, was by degrees to be developed?"

"Nature is indeed adequate to fear," replied they, "but to reverence not adequate. Men fear a known or unknown powerful being; the strong seeks to conquer it, the weak to avoid it; both endeavor to get quit of it, and feel themselves happy when for a short season they have put it aside, and their nature has in some degree restored itself to freedom and independence. The natural man repeats this operation millions of times in the course of his life; from fear he struggles to freedom; from freedom he is driven back to fear, and so makes no advancement. To fear is easy, but grievous; to reverence is difficult, but satisfactory. Man does not willingly submit himself to reverence, or rather he never so submits himself: it is a higher sense which must be communicated to his nature; which only in some favored individuals unfolds itself spontaneously, who on this account, too, have of old been looked upon as Saints and Gods. Here lies the worth, here lies the business of all true Religions, whereof there are likewise only three, according to the objects towards which they direct our devotion."

The men paused; Wilhelm reflected for a time in silence; but feeling in himself no pretension to unfold these strange words, he requested the Sages to proceed with their exposition. They immediately complied. "No Religion that grounds itself on fear," said they, "is regarded among us. With the reverence to which a man should give dominion in his mind, he can, in paying honor, keep his own honor; he is not disunited with himself as in the former case. The Religion which depends on Reverence for what is Above us, we denominate the Ethnic; it is the Religion of the Nations, and the first happy deliverance from a degrading fear: all Heathen religions, as we call them, are of this sort, whatsoever names they may bear. The Second Religion, which founds itself on Reverence for what is Around us, we denominate the Philosophical; for the Philosopher stations himself in the middle, and must draw down to him all that is higher, and up to him all that is lower, and only in this medium condition does he merit the title of Wise. Here as he surveys with clear sight his relation to his equals, and therefore to the whole human race, his relation likewise to all other earthly circumstances and arrangements necessary or accidental, he alone. in a cosmic sense, lives in truth. But now we have to speak of the Third Religion, grounded on Reverence for what is Under us: this we name the Christian; as in the Christian Religion such a temper is the most distinctly manifested: it is a last step to which mankind were fitted and destined to attain. But what a task was it, not only to be patient with the Earth, and let it lie beneath us, we appealing to a higher birthplace; but also to recognize humility and poverty, mockery and despite, disgrace and wretchedness, suffering and death, to recognize these things as divine; nay, even on sin and crime to look not as hindrances, but to honor and love them as furtherances, of what is holy. Of this, indeed, we find some traces in all ages: but the trace is not the goal: and this being now attained, the human species can not retrograde; and we may say that the Christian Religion, having once appeared, can not again vanish; having once assumed its divine shape, can be subject to no dissolution."

"To which of these Religions do you specially adhere?" inquired Wilhelm.

"To all the three," replied they, "for in their union they produce what may properly be called the true Religion. Out of those three Reverences springs the highest Reverence, Reverence for One's self, and these again unfold themselves from this; so that man attains the highest elevation of which he is capable, that of being justified in reckoning himself the Best that God and Nature have produced; nay, of being able to continue on this lofty eminence, without being again by self-conceit and presumption drawn down from it into the vulgar level."

The Three undertake to admit him into the interior of their Sanctuary; whither, accordingly, he, 'at the hand of the Eldest,' proceeds on the morrow. Sorry are we that we can not follow them into the 'octagonal hall,' so full of paintings, and the 'gallery open on one side, and stretching round a spacious, gay, flowery garden.' It is a beautiful figurative representation, by pictures and symbols of Art, of the First and the Second Religions, the Ethnic and the Philosophical; for the former of which the pictures have been composed from the Old Testament; for the latter from the New. We can only make room for some small portions.

"I observe," said Wilhelm, "you have done the Israelites the honor to select their history as the groundwork of this delineation, or rather you have made it the leading object there."

"As you see," replied the Eldest; "for you will remark, that on the socles and friezes we have introduced another series of transactions and occurrences, not so much of a synchronistic as of a symphronistic kind; since, among all nations, we discover records of a similar import, and grounded on the same facts. Thus you perceive here, while, in the main field of the picture, Abraham receives a visit from his gods in the form of fair youths, Apollo among the herdsmen of Admetus is painted above on the frieze. From which we may learn, that the gods, when they appear to men, are commonly unrecognized of them."

The friends walked on. Wilhelm, for the most part, met with well-known objects; but they were here exhibited in a livelier, more expressive manner, than he had been used to see them. On some few matters he requested explanation, and at last could not help returning to his former question: "Why the Israelitish history had been chosen in preference to all others?"

The Eldest answered: "Among all Heathen religions, for such also is the Israelitish, this has the most distinguished advantages; of which I shall mention only a few. At the Ethnic judgment-seat; at the judgment-seat of the

God of Nations, it is not asked whether this is the best, the most excellent nation; but whether it lasts, whether it has continued. The Israelitish people never was good for much, as its own leaders, judges, rulers, prophets, have a thousand times reproachfully declared; it possesses few virtues, and most of the faults of other nations: but in cohesion, steadfastness, valor, and when all this would not serve, in obstinate toughness, it has no match. It is the most perseverant nation in the world; it is, it was, and it will be, to glorify the name of Jehovah through all ages. We have set it up, therefore, as the pattern figure: as the main figure, to which the others only serve as a frame."

"It becomes not me to dispute with you," said Wilhelm, "since you have instruction to impart. Open to me, therefore, the other advantages of this people, or rather of its history, of its religion."

"One chief advantage," said the other, "is its excellent collection of Sacred Books. These stand so happily combined together, that even out of the most diverse elements, the feeling of a whole still rises before us. They are complete enough to satisfy; fragmentary enough to excite; barbarous enough to rouse; tender enough to appease; and for how many other contradicting merits might not these Books, might not this one Book, be praised?" * * *

Thus wandering on, they had now reached the gloomy and perplexed periods of the History, the destruction of the City and the Temple, the murder, exile, slavery of whole masses of this stiff-necked people. Its subsequent fortunes were delineated in a cunning allegorical way; a real historical delineation of them would have lain without the limits of true Art.

At this point, the gallery abruptly terminated in a closed door, and Wilhelm was surprised to see himself already at the end. "In your historical series," said he, "I find a chasm. You have destroyed the Temple of Jerusalem, and dispersed the people; yet you have not introduced the divine man who taught there shortly before; to whom, shortly before, they would give no ear."

"To have done this, as you require it, would have been an error. The life of that divine Man, whom you allude to, stands in no connection with the general history of the world in his time. It was a private life; his teaching was a teaching for individuals. What has publicly befallen vast masses of people, and the minor parts which compose them, belongs to the general History of the World, to the general Religion of the World; the Religion we have named the First. What inwardly befalls individuals belongs to the Second Religion, the Philosophical: such a Religion was it that Christ taught and practiced, so long as he went about on Earth. For this reason, the external here closes, and I now open to you the internal."

A door went back, and they entered a similar gallery; where Wilhelm soon recognized a corresponding series of Pictures from the New Testament. They seemed as if by another hand than the first: all was softer; forms, movements, accompaniments, light and coloring.

Into this second gallery, with its strange doctrine about 'Miracles and Parables,' the characteristic of the Philosophical Religion, we can not enter for the present, yet must give one hurried glance. Wilhelm expresses some surprise that these delineations terminate "with the Supper, with the scene where the Master and his Disciples part." He inquires for the remaining portion of the history.

"In all sorts of instruction," said the Eldest, "in all sorts of communication, we are fond of separating whatever it is possible to separate; for by this means alone can the notion of importance and peculiar significance arise in the young mind. Actual experience of itself mingles and mixes all things together; here, accordingly, we have entirely disjoined that sublime Man's life from its termination. In life, he appears as a true Philosopher,—let not the expression stagger you,—as a Wise Man in the highest sense. He stands firm to his point; he goes on his way inflexibly, and while he exalts the lower to himself, while he makes the ignorant, the poor, the sick, partakers of his wisdom, of his riches, of his strength, he, on the other hand, in nowise conceals his divine origin; he dares to equal himself with God, nay, to declare that he himself is God. In this manner he is wont, from youth upwards, to astound his familiar friends: of these he gains a part to his own cause; irritates the rest against him; and shows to all men, who are aiming at a certain elevation in doctrine and life, what they have to look for from the world. And thus, for the noble portion of mankind, his walk and conversation are even more instructive and profitable than his death: for to those trials every one is called, to this trial but a few. Now, omitting all that results from this consideration, do but look at the touching scene of the Last Supper. Here the Wise Man, as it ever is, leaves those that are his own, utterly orphaned behind him; and while he is careful for the Good, he feeds along with them a traitor, by whom he and the Better are to be destroyed."

This seems to us to have 'a deep, still meaning;' and the longer and closer we examine it, the more it pleases us. Wilhelm is not admitted into the shrine of the Third Religion, the Christian, or that of which Christ's sufferings and death were the symbol, as his walk and conversation had been the symbol of the Second, or Philosophical Religion. "That last Religion," it is said,—

"That last Religion, which arises from the Reverence of what is Beneath us; that veneration of the contradictory, the hated, the avoided, we give to each of our pupils, in small portions, by way of outfit, along with him, into the world, merely that he may know where more is to be had, should such a want spring up within him. I invite you to return hither at the end of a year, to attend our general Festival, and see how far your son is advanced: then shall you be admitted into the Sanctuary of Sorrow."

"Permit me one question," said Wilhelm: "as you have set up the life of this divine Man for a pattern and example, have you likewise selected his sufferings, his death, as a model of exalted patience?"

"Undoubtedly we have," replied the Eldest, "Of this we make no secret; but we draw a veil over those sufferings, even because we reverence them so highly. We hold it a damnable audacity to bring forth that torturing Cross, and the Holy One who suffers on it, or to expose them to the light of the Sun, which hid its face when a reckless world forced such a sight on it; to take these mysterious secrets, in which the divine depth of Sorrow lies hid, and play with them, fondle them, trick them out, and rest not till the most reverend of all solemnities appears vulgar and paltry. Let so much for the present suffice— * * * The rest we must still owe you for a twelvemonth. The instruction, which in the interim we give the children, no stranger is allowed to witness: then, however, come to us, and you will hear what our best Speakers think it serviceable to make public on those matters."

Could we hope that, in its present disjointed state, this emblematic sketch would rise before the minds of our readers, in any measure as it stood before the mind of the writer; that, in considering it, they might seize only an outline of those many meanings which, at less or greater depth, lie hidden under it, we should anticipate their thanks for having, a first or a second time, brought it before them. As it is, believing that, to open-minded truth-seeking men, the deliberate words of an open-minded truth-seeking man can in no case be wholly unintelligible, nor the words of such a man as Göethe indifferent, we have transcribed it for their perusal. If we induce them to turn to the original, and study this in its completeness, with so much else that environs it, and bears on it, they will thank us still more, To our own judgment at least, there is a fine and pure significance in this whole delineation: such phrases even as 'the Sanctuary of Sorrow,' 'the divine depth of Sorrow,' have of themselves a pathetic wisdom for us; as indeed a tone of devoutness, of calm, mild, priestlike dignity pervades the whole. In a time like ours, it is rare to see, in the writings of cultivated men, any opinion whatever bearing any mark of sincerity on such a subject as this: yet it is and continues the highest subject, and they that are highest are most fit for studying it, and helping others to study it.

The following passages, of a pedagogical character, are taken from Göethe's *Wilhelm Meister* in Carlyle's version:

In order to accomplish any thing by education, we must first become acquainted with the pupil's tendencies and wishes: that when these are ascertained, he ought to be transported to a situation where he may, as speedily as possible, content the former and attain the latter; and so if we have been mistaken, may still in time perceive his error; and at last having found what suits him, may hold the faster, and the more diligently fashion himself by it

The child's desire to have distinctions made in his ideas grew stronger every day. Having learned that things had names, he wished to hear the name of every thing: supposing that there could be nothing, which his father did not know, he often teased him with his questions, and caused him to inquire concerning objects, which but for this he would have passed unheeded. Our innate tendency to pry into the origin and end of things was likewise soon developed in the boy. When he asked whence came the wind, and whither went the flame, his father for the first time truly felt the limitation of his own powers, and wished to understand how far man may venture with his thoughts, and what things he may hope ever to give account of to himself or others.

You admit that poets must be born such; you admit this with regard to all professors of the fine arts; because you must admit it, because those workings of human nature can scarce be aped with any plausibility. But if we consider strictly, we shall find that every capability, however slight, is born with us; that there is no vague general capability in men. It is our ambiguous dissipating education that makes men uncertain; it awakens wishes when it should be animating tendencies; instead of forwarding our real capacities, it turns our efforts towards objects which are frequently discordant with the mind that aims at them. I augur better of young persons who are wandering astray along a path of their own, than of many who are walking rightly upon paths, which are not theirs. If the former, either by themselves, or by the guidance of others, ever find the right path, that is to say, the path which suits their nature, they will never leave it; while the latter are in danger every moment of shaking off a foreign yoke, and abandoning themselves to unrestricted license.

Without earnestness there is nothing to be done in life: yet among the people whom we name cultivated men, but little earnestness is to be found: in labors and employments, in arts, nay even in recreations, they proceed, if I may say so, with a sort of self-defense; they live, as they read a heap of newspapers, only to be done with it; they remind one of that young Englishman at Rome, who told, with a contented air, one evening in some company, that 'to-day he had dispatched six churches and two galleries.' They wish to know and learn a multitude of things, and exactly those with which they have the least concern; and they never see that hunger is not stilled by snapping at the air. When I become acquainted with a man, my first inquiry is: With what does he employ himself, and how, and with what degree of perseverance? The answer regulates the interest, which I shall take in him for life.

The invaluable happiness of liberty consisted, not in doing what one pleases, and what circumstances may invite to, but in being able, without hindrance or restraint, to do in the direct way what one regards as right and proper.

Art is long, life short, judgment difficult, occasion transient. To act is easy, to think is hard; to act according to our thought is troublesome. Every beginning is cheerful; the threshold is the place of expectation. The boy stands astonished, his impressions guide him; he learns sportfully, seriousness comes on him by surprise. Imitation is born with us; what should be imitated is not easy to discover. The excellent is rarely found, more rarely valued. The height charms us, the steps to it do not; with the summit in our eye, we love to walk along the plain. It is but a part of art that can be taught; the artist needs it all. Who knows it half, speaks much and is always wrong; who knows it wholly, inclines to act and speaks seldom or late. The former have no secrets and no force; the instruction they can give is like baked bread, savory and satisfying for a single day; but flour can not be sown, and seed corn ought not to be ground. Words are good, but they are not the best. The best is not to be explained by words. The spirit in which we act is the highest matter. Action can be understood and again represented by the spirit alone. No one knows what he is doing, while he acts rightly; but of what is wrong we are always conscious. Whoever works with symbols only is a pedant, a hypocrite, or a bungler. There are many such, and they like to be together. Their babbling detains the scholar; their obstinate mediocrity vexes even the best. The instruction, which the true artist gives us, opens up the mind; for where words fail him, deeds speak. The true scholar learns from the known to unfold the unknown, and approaches more and more to being a master.

True art is like good company: it constrains us in the most delightful way to recognize the measure, by which and up to which our inward nature has been shaped by culture.

It was the history of art alone, which could give us an idea of the worth and dignity of any work of art; that we should know the weary steps of mere handicraft and mechanism, over which the man of talents has arisen in the course of centuries, before we can conceive how it is possible for the man of genius to move with airy freedom, on the pinnacle whose very aspect makes us giddy.

Men are so inclined to content themselves with what is commonest; the spirit and the senses so easily grow dead to the impressions of the beautiful and perfect; that every one should study to nourish in his mind the faculty of feeling these things by every method in his power. For no man can bear to be entirely deprived of such enjoyments: it is only because they are not used to taste of what is excellent, that the generality of people take delight in silly and insipid things, provided they be new. For this reason, one ought every day at least to hear a little song, read a good poem, see a fine picture, and if it were possible, to speak a few reasonable words.

If we can conceive it possible that the Creator of the world himself assumed the form of his creation, and lived in that manner for a time upon earth, this creature must appear to us of infinite perfection, because susceptible of such a combination with its maker. Hence, when we feel a certain disagreement with Him, and remoteness from Him, it is on that account the more our duty to seek out every property and beauty of our nature, by which our pretension to a similarity with the Divinity may be made good.

THE EDUCATION OF YOUTH.

BY CHARLES ROLLIN,

Principal of the University of Paris, Professor of Eloquence in the Royal College, etc.

INTRODUCTION.

This introduction will contain two articles. In the first I shall show the importance of the good education of youth. In the second I shall inquire whether public instruction is preferable to private.

1. *Importance of Good Education.*

The education of youth has been ever considered by the great philosophers and the most famous lawgivers as the most certain source of the tranquility and happiness, both of private families and of states and empires. For what else, in short, is a republic or kingdom but a large body, whose health and strength depend upon the like circumstances of private families which are the members and parts of it, and none of which can fail in the discharge of their function but the whole body must suffer for it? Now what is it but good education which enables all the citizens and great men, and princes above the rest, to perform their different functions in a deserving manner? Is it not evident that youth are as the nursery of the state? That it is renewed and perpetuated by them? That from among them all the fathers of families, all magistrates and ministers; in a word, all persons placed in authority and power are taken? And is it not certain that the good education of those who are one day to fill those places will have an influence over the whole body of the state, and become, in a manner, the spirit and general character of the whole nation?

The laws, indeed, are the foundation of empires, and by preserving a regularity and good order in them, they keep them in peace and tranquility. But whence have the laws themselves that force and vigor, but from good education, which trains up men in subjection to them, without which they are but a feeble barrier against the passions of mankind?

> Quid leges sine moribus vanæ proficiunt?[*]

Plutarch[†] makes a judicious reflection on this subject which well deserves to be considered: 'Tis in speaking of Lycurgus. "This wise lawgiver," says he,[‡] "did not think it convenient to set down his laws in writing, as judging that the strongest and most effectual means of making cities happy and people virtuous, was the impression that was made in the manners of the citizens, and rendered familiar and easy to them by custom and habit. For the principles which education has engraven in their minds continue firm and unshaken, as being founded upon an inward conviction, and even upon the will, which is always a much stronger and more lasting tie than that of force; insomuch that this education becomes the rule of youth, and serves them instead of a lawgiver." Here we have the justest notion that can be given of the difference there is between the laws and education.

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[*] *Horat. Od.* xxv. lib. 3.

[†] *In vit. Lycurg.*

[‡] *Arist.* lib. 5, *v. Polit.* cap. 9.

The law, when it stands alone, is a severe and imperious mistress, *ἀνάγκη*, which lays a man under restraint in what he holds most dear, and whereof he is most jealous, I mean his liberty; which torments and contradicts him in everything, is deaf to his remonstrances and desires, never yields to any relaxation, speaks always in a threatening tone, and presents him only with correction. Thus it is not surprising that men should shake off this yoke as soon as ever they can without punishment, and that, giving ear no longer to its troublesome directions, they should give themselves up to follow their natural inclinations, which the law had only restrained without changing or destroying them.

But the case is far otherwise with education. 'Tis a mistress that is gentle and engaging, an enemy to violence and constraint, which loves only to act by motives of persuasion, which endeavors to make its instructions relished, by speaking always with reason and truth, and tends only to make virtue more easy by making it more amiable. Its lectures, which begin almost as soon as the child is born, grow up and gather strength with it, in time take deep root, soon pass from the memory and understanding to the heart, are daily imprinted in his manners, by practice and habit become a second nature in him, which is scarce possible to be changed, and do the office of a present legislator all the rest of his life, putting him in mind of his duty upon every occasion, and engaging him to the practice of it. Ἡ *παίδευσις νομοθέτου διάθεσιν ἀπεργάζεται περὶ ἕκαστον αὐτῶν.*

We must not wonder, after this, that the ancients have recommended the education of youth with so much care, and looked upon it as the surest means of making an empire stable and flourishing. It was a capital maxim with them that children are more the property of the republic than of their parents;* and that thus their education should not be given up to their fancies, but be intrusted to the care of the republic; that for this reason children ought to be brought up, not in private and in their fathers' houses, but in public, by common masters, and under the same discipline, that they may be early inspired with a love for their country, respect for its laws and relish for the principles and maxims of the state wherein they are to live. For every kind of government has its peculiar genius. The spirit and character of a republic is very different from that of a monarchy. Now this spirit and character are only to be imbibed by the appropriate education of children.

It is in consequence of the principles I have laid down, that Lycurgus,

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* *Arist. Polit.* lib. 8, cap. 1.

Plato, Aristotle, and, in a word, all that have left us any rules of government, have declared that the principal and most essential duty of a magistrate, a minister, a lawgiver, and a prince, is to watch over the good education, first of their own children, who often succeed in their stead, and then of the citizens in general who form the body of the republic; and they observe that the whole disorder of states arises only from the negligence of this twofold duty.

Plato* quotes an illustrious example of it in the person of the famous Cyrus, the most accomplished prince we read of in ancient history. He wanted none of the talents which were requisite to make a great man, excepting that we are here speaking of. Being wholly taken up with his conquests, he intrusted the education of his children with the women. These young princes were therefore brought up, not after the rough and severe discipline of the Persians, which had so well succeeded in Cyrus their father, but after the manner of the Medes; that is, in luxury, softness, and pleasures. Nobody ventured to contradict them in anything. Their ears were open only to praise and flattery; everything bent their knee and bowed low before them. And it was thought to become their grandeur to put an infinite distance between them and the rest of mankind, as though they had been of a different species from them. "Such an education, so remote from all reproof and education, had," says Plato, "the success which was to be expected from it. The two princes, presently after the death of Cyrus, took up arms against each other, as not being able to bear either a superior or an equal; and Cambyses, grown absolute master by the death of his brother, ran furiously into all sorts of excess, and reduced the Persian empire to the brink of ruin. Cyrus left him a vast extent of provinces, immense revenues, and armies without number; but all this turned to his ruin, for want of another benefit far more valuable, which he neglected to leave him,—I mean a good education.

This judicious remark of Plato concerning Cyrus entirely escaped me in reading the history of him by Xenophon. Nor did I reflect that this historian is absolutely silent upon the education of this prince's children, whereas, he largely describes the excellent manner in which the Persian youth were brought up, and Cyrus himself amongst the rest. 'Tis the greatest fault a prince can be guilty of.

Philip, king of Macedon, behaved in a very different manner.† Upon the birth of his son, when engaged in the midst of his conquests and at the time of his greatest achievements, he wrote Aristotle the following letter: "I give you notice that I have a son born to me, but I am not so much obliged to the gods for his birth, as for the happiness that he has come into the world whilst there is an Aristotle living. For I hope that, being brought up under your direction and by your care, he may deserve the glory of his father and the empire which I shall leave him." This was talking and thinking like a great prince who was thoroughly acquainted with the importance of a good education. Alexander had the same sentiments. An historian observes that he loved Aristotle no less than his own father *because*, he said, *he was indebted to the one for living, and the other for living well.*

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* *Plat.* lib. 3, *de leg.*

† *Aul. Gel.* lib. 9, cap. 3.

If it is a great fault in a prince not to take care of the education of his own children, it is no less blamable to accept that of the citizens in general. Plutarch very judiciously observes in the parallel he draws between Lycurgus and Numa, that it was a like negligence which rendered all the good designs and great intuitions of the latter useless. The passage is very remarkable. "All the labor of Numa," says he, "who took pains only to maintain the peace and tranquillity of Rome, vanished with him; and he was no sooner dead than the temple of Janus, which he had constantly kept shut as if he had really held there the demon of war confined in chains, was immediately opened again, and all Italy filled with blood and slaughter. Thus the most beautiful and best of his institutions was but of short continuance, as it wanted the sole tie capable of maintaining it, which was the education of youth.

It was the opposite conduct which so long preserved the laws of Lycurgus in full force. For, "as the same Plutarch observes, the religion of an oath which he required of the Lacedæmonians would have been a feeble support after his death, if by education he had not imprinted the laws in their manners. It had made them suck in the love of his form of government almost with their milk, by making it in a manner familiar and natural to them. Thus we see the principal of his ordinances were kept for above five hundred years like a good and a strong dye which had penetrated the very substance of the soul."

All these great men of antiquity were therefore persuaded, as Plutarch observes of Lycurgus in particular, that the most essential duty of a lawgiver, and so of a prince, was to establish good rules for the education of youth, and to see that they were exactly observed. It is surprising to see how far they carried their care and watchfulness upon this point. They advised to use precautions in the choice of such persons as were to take care of children from their very birth, and it is plain that Quintilian has taken what he has said upon this subject from Plato and Aristotle, especially in what relates to nurses. He requires, with those wise philosophers, that in the choice that is made of them, care should not only be taken that they had no bad ways of speaking, but, withal, that a special regard should be had to their manners and disposition; and the reason he gives for it is admirable.* "For what is learnt," says he, "at that age is easily imprinted in the mind, and leaves deep marks behind it which are not easily to be obliterated. As in the case of a vessel, which long preserves a tincture of the first liquor that was poured into it; and like wool, which can never recover its first whiteness after it has been once dyed, and the misfortune is that bad habits last longer than good ones."

'Tis for the same reason, that these philosophers look upon it as one of the most essential duties of those who are entrusted with the education of children, to remove from them, as far as possible, the slaves and domestics, whose discourses and examples may be predudicial to them.*

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* *Quint.* lib. 1, c. 1.

To this they add a piece of advice which will condemn a great many Christian fathers and masters. They require that not only the boys should be disallowed to read any comedies or be present at any theatrical show before they arrive at a certain age, but that all pictures, sculptures, or tapestry, which may lay any indecent and dangerous image before the eyes of their children, should be absolutely banished their cities. They desire that the magistrates should carefully watch over the execution of this ordinance, and that they should oblige the workmen, even such as were most industrious, who refused to submit to it, to carry their fatal skill to some other place. They were persuaded that from such objects as these, that were adapted to flatter the passions and feed the desire, there arose a kind of contagion and pestilential air that was at length indefinably capable of infecting the masters themselves who breathe it every moment without fear and precaution, and that these objects were like so many poisoned flowers which exhale a deadly odor, that was the more to be feared as it was the less distrusted and even appeared agreeable.† These wise philosophers require, on the other hand, that everything in a city should teach and inspire virtue —inscriptions, pictures, statues, plays, and conversations—and that from everything that is presented to the senses and strike the eyes and ears, there should be formed a kind of salutary air and breath which should imperceptibly insinuate itself into the souls of the children, and aided and assisted by the instruction of the master, should incline them from their tenderest years to the love of probity and a regard for honesty. There is a beauty and delicacy in the original expression which no other language is capable of, and though this passage be somewhat long, I have thought proper to quote a greater part of it to give some idea of Plato's style.

I shall now return to my subject, and conclude this first article with desiring the reader to consider how the pagans themselves ever looked upon the care of the education of the children as the most essential duty of parents, magistrates, and princes, as it is of last importance for all the rest of their lives to have good principles instilled into them from the beginning. In short, where their minds are yet tender and flexible, they may be turned and managed as we please, whereas, age and long habit will make faults almost incorrigible. *Frangas enim citius quam corrigas, quæ in pravum induruerunt.*‡

2. *Relative Value of Public and Private Instruction.*

During the whole time I have been engaged in the education of youth, being thoroughly sensible of the dangers which occur both in private houses and great schools, I have never presumed to give advice upon this subject, and have ever been content with applying myself as carefully as I could to the instruction of the boys which Divine Providence committed to my care. I think I ought still to observe the same neutrality, and leave it to the prudence of parents to decide a question which certainly admits of great difficulties on both sides.

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* *Arist. Polit.* lib. 7, c. 17.

† *Plut.* lib. 3, *de Rep.*

‡ *Quintil.* lib. 1, cap. 3.

Quintilian has discoursed upon this point with great prolixity and eloquence.* The passage is one of the most beautiful in his work, and deserves to be read in the original. I shall give the substance of it.

He begins with answering two objections against public schools.

The first relates to purity of morals, which they claim is here exposed to the greatest dangers. Was this the case, he thinks we should not hesitate a moment,—the care of living well being infinitely preferable to that speaking well. But, he says, the danger is equal on both sides; that the whole depends upon the natural disposition of the children and the care that is taken of their education; that usually the evil springs from the parents themselves by the bad examples they set their children. All this passes into habit and soon after into nature. The poor children find themselves vicious before they know what vice is. Thus, breathing nothing but luxury and pleasure, they do not take their irregularity from the schools, but bring it thither.

The second objection concerns the advancement in their studies, which must be greater in a private house where the master has but one scholar to instruct. Quintilian does not allow this for several reasons which he lays down, but he adds, that this inconvenience, though it were real, is abundantly repaired by the great advantages which follow upon a public education.

First, a public education emboldens a young man, gives him courage, early accustoms him not to be afraid of being looked upon, and cures him of a certain pusilanimity which naturally attends a private and retired life; whereas, in secret, he usually grows languid and dejected; he grows rusty, as I may say, or else falls into an opposite extreme, becomes conceited, setting a greater value upon himself than upon others from having no person to compare himself with.

Second and third. In a public school there are acquaintances formed which often last as long as they live, and there is a certain knowledge of the world to be gained which society alone can procure. Quintilian does not insist much upon these two advantages, and seems to set no great value on them.

Fourth. The great advantage of schools is emulation. A child there improves both by what is said to himself and what is said to others. He will every day see his master approve one thing and correct another, blame the idleness of this boy and commend the diligence of that, and will be the better for it all. The love of glory will serve him as a spur to labor. He will be ashamed to be behindhand with his equals, and will take pains to excel the most forward. A good scholar will use his utmost endeavors to be the first in his form and carry the prize. 'Tis this which gives ardor to young minds; and a noble emulation, well managed, without any intermixture of malice, envy, and pride, is one of the best means to lead them to the exercise of the greatest virtues and difficult undertakings.

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* *Quintil.* lib. 1, cap. 1.

Fifth. Another advantage which is farther to be found in schools, is that a young man meets with such models among his companions as are within his reach, such as he flatters himself he may be able to come up to, and does not despair of one day surpassing, whereas, if he was alone, it would be presumption in him to compare himself with his master.

Sixth. Lastly, a master who has a numerous auditory exerts himself quite otherwise than he who, having but one scholar, can speak only coldly to him, and in the way of conversation. Now it is incredible how serviceable this fire and vivacity of a master who, in explaining the beautiful passages of an author, grows warm and transported, is, not only to make the boys attentive, but likewise to inspire them with the same taste and sentiments as he feels who is speaking to them.

Quintilian does not fail to observe that the opinion which he maintains is confirmed by general custom, and the authority of the most esteemed authors and most famous legislators.

I might add, that this conduct has no less regularly been observed since the days of Quintilian, and amongst Christians. Ecclesiastical history supplies us with abundance of examples. That of St. Basil and St. Gregory Nazianzen is known to all the world. I shall give the particulars of it at the close of this volume, and shall now only observe that the families of these two illustrious friends were the most Christian that were then in the Church. They thought, however, they might commit the dearest treasure they had in the world to the public schools, and God blessed their pious intentions with a success that surpassed all their expectations. Shall we venture to charge this conduct with imprudence and presumption?

On the other side, may we venture to condemn the religious fearfulness of Christian parents, who, upon seeing the dangers which occur in colleges (and it must be owned, too, that they are great ones), and being less solicitious about their children's improvement in the sciences than to preserve to them the precious and inestimable treasure of their innocence, determine to bring them up under their own inspection in a family where they may hear naught but wise discourse, where they will see naught but good examples, and from whence whatever may be capable of corrupting the purity of their morals is carefully removed as much as possible. There is now, certainly, some such houses, but the number of them is very few.

Besides the two usual methods of bringing up youth—the boarding them out at public schools, or instructing them in private—there is a third, which holds the middle place, and seems to join the other two, and that is, to send children to school to improve by the emulation of the classes, and keeping them home the rest of the time. By this means, perhaps, they avoid a part of the dangers, as they are also deprived of one part of the advantages of the college, amongst which we ought certainly to reckon the order, regularity, and discipline which, by the sound of a clock, points out all the exercises of the day in a uniform manner, and the simplicity and frugality of their way of living, which are very different from the indulgence of their fathers' houses, and serve only to render them too nice and tender. "My father," says *Henry de Mesmes*, "had two views in the education of the college; the one was the gay and innocent conversation of the boys, the other was the school discipline, to make us forget the endearments of our home, and, as it were, to cleanse us in fresh water. I think those eighteen months I spent at the college were of great service to me. . . . . I learnt the frugal life of the scholars, and how to portion out my time."

Another advantage of colleges, supposing them to be such as they should be, and the greatest of all is, that the boys are there thoroughly taught their religion. They learn to take the knowledge of it from the spring, to know the real spirit and true greatness of it, and to fortify themselves by solid principles against the dangers which faith and piety too frequently meet with in the world. It is not impossible, but certainly 'tis very rare, to find this advantage in private houses.

Now, what must we conclude from all these principles and all these facts? There is no college which cannot produce a great number of examples of boys who have had an excellent education there, and been improved both in the sciences and in piety; nor is there any one which has not seen with grief a great number miscarry; and the case is the same in private houses.

The conclusion which, in my opinion, we should draw from hence is, that the dangers are very great to youth on all sides. It is the duty of parents to examine well before God what course they ought to take, equitably to weigh the advantages and inconveniences which occur on both sides, to be determined in so important a deliberation only by the motives of religion, and above all, to make such a choice of masters and colleges, in case they follow that course, as may, if not entirely dissipate, at least diminish, their just apprehensions.

The Plan and Division of this Treatise.

To enter usefully into the particulars of what concerns the private government of the classes and colleges, it is necessary to consider separately the duty of the different persons who are employed in the education of youth and bear any relation to it. But as there are some general directions which almost equally belong to all, I will begin this treatise with them, that I may avoid the repetitions which otherwise would be inevitable.

I. GENERAL PRINCIPLES.

I shall begin with desiring the reader, when I talk of instructions, rules, precepts, and duties, which are terms that I cannot avoid employing in the subject I treat of, to do me so much justice as to think that I do not pretend to prescribe laws to any one, or to set up for a master or censurer of my brethren. My only design is to assist, if I can, such young persons as are intrusted with the education of children who, for want of experience, are subject to commit a great many errors, as I own that I myself have formerly committed, and I shall think myself very happy if I can contribute to make them avoid them by laying my reflections before them, or rather those of the ablest masters in point of education. For I shall here scarce say anything of myself, especially in this first part, which is the most important, and should serve as the basis and foundation to all the rest. Athens and Rome shall here lend me their assistance. I shall likewise make use of two modern authors, and often without quoting them. These are M. de Fénelon, Archbishop of Cambray, and Mr. Locke, whose writings upon this subject are justly very much esteemed. The last has some particular sentiments which I would not always follow. Besides, I question whether he was well skilled in the Greek tongue, and in the study of the belles lettres; at least he seems not to set the value upon them they deserve. But both of them may be of very great use with relation to morals and conduct, not only to young masters, but to persons of greater experience. I have taken the liberty of making use of the labors of others, as I have thought fit, and I am inclined to think that the public will not be displeased at it, being content to have good things laid before them without being concerned from whence they are taken. I shall reduce to twelve or thirteen articles the general instructions which relate to the education of youth.

1. THE END TO BE AIMED AT IN EDUCATION.

To succeed in the education of youth, the first step is to lay down the end we should aim at, to inquire by what means it is to be obtained, and to choose out an able and experienced guide, who is able to conduct us safely to it. Though it be generally a very wise and judicious rule* to avoid all singularity, and to follow the received customs, yet I question whether, in the point we now treat of, this principle does not admit of some exception, and whether we ought not to apprehend the dangers and inconveniencies of blindly following the footsteps of those who have gone before us, so as to consult custom more than reason, and the governing our actions rather by what others do than by what they should do; from whence it often happens that an error once established is handed down from age to age, and becomes almost a certain law, from a notion that we ought to act like the rest of mankind, and follow the example of the greater number. But the greatest number do not always make the best choice, and we too frequently observe the contrary.

If we consult our reason ever so little, it is easy to discern that the end which masters should have in view, is not barely to teach their scholars Greek and Latin, to learn them to make exercises and verses, to charge their memory with facts and historical dates, to draw up syllogisms in form, or to trace lines or figures upon paper. These branches of knowledge I own are useful and valuable, but as means and not as the end, when they conduct us to other things, and not when we stop there; when they serve us as preparatives and instruments for better matters, the ignorance of which makes all the rest useless.† The boys would have cause to complain, if they were condemned to spend eight or ten of the best years of their life in learning, at a great expense and with incredible pains, one or two languages, and some other matters of a like nature, which, perhaps, they would but seldom have occasion to make use of. The end of masters, in the long course of their studies, is to habituate their scholars to a serious labor, to make them love and value the sciences, and to raise such an appetite in them as shall make them thirst after them when they are gone from school, to point out the method of attaining to them, and make them thoroughly sensible of their use and value, and by that means to dispose them for the different employments to which it shall please God to call them. Besides this, it is farther the end of masters to improve their hearts and understandings, to protect their innocence, to inspire them with principles of honor and probity, to train them up to good habits, to correct and subdue in them, by gentle means, the ill inclinations they shall be observed to have, such as roughness, insolence, an high opinion of themselves, and a proud-swelling vanity constantly employed in lessening others, a blind self-love, which is only careful of procuring advantage to itself, a spirit of raillery which is pleased with offending and insulting others, an insolence and sloth, which renders all the good qualities of the mind unserviceable.*

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*Senec. lib. de vit. Beat. caps. 1, 2.

† Senec. Epist. 88.

2. TO STUDY THE CHARACTER OF THE CHILDREN.

Education, properly speaking, is the art of developing and fashioning the mind. Of all sciences it is the most difficult, the most novel, and, at the same time, the most important, but yet not sufficiently studied. To judge by common experience, of all the animals man is the most untractable. Xenophon, in the beautiful preface to his *Cyropedia*, observes, "We never see flocks of sheep or oxen rebel against their leaders, whereas nothing is more common amongst men; it seems a natural conclusion that it is more difficult to rule over men than over beasts." But, casting his eyes upon Cyrus, who governed so many provinces in peace, and was equally beloved by the people he had conquered and his natural subjects, he concludes that "the fault must arise not from those who are unwilling to obey, but from the superiors who know not how to govern."

The same may be said, in some proportion, of those who are intrusted with the education of children. It must be owned that the mind of man, even in his infancy, bears the yoke with impatience, and naturally inclines to what is forbidden.† But what we must conclude from hence is, that for this very reason he requires more precaution and address, and that he yields more willingly to mildness than violence (*sequitur facilius quam ducitur*). We sometimes see a stomachful horse who capers and gnaws the bit, and refuses to obey the spur; 'tis because the rider has a hard and heavy hand, knows not how to guide him, and checks the bridle when he ought not. Give this horse, who has a very tender mouth, an understanding and skilful rider, and he will check all his sallies, and, with a light hand, govern him with pleasure (*generosi atque nobiles equi melius facili fraeno reguntur*).

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* *Senec. lib. de vit. beat.* cap. 1.

† *Senec. de Clem.* lib. 1, cap. 24.

To compass this end, the master's first care is thoroughly to study and search into the genius and character of the children, for by this he must regulate his conduct. There are some who are lazy and remiss, unless they are continually called upon, and others cannot bear to be imperiously treated; some will be restrained by fear, and others, on the contrary, discouraged.[*] We can gain nothing out of some, but by mere labor and application; and others only will study by fits and starts. To endeavor to bring them all to a level, and make them submit to one and the same rule, is to attempt to force nature. The prudence of the master will consist in keeping a medium, which is equally removed from the two extremes; for here the ill so closely borders upon the good, that it is easy to mistake the one for the other, and 'tis this which renders the management of boys so difficult.[†] Too much liberty leads to licentiousness, and too much constraint makes them stupid; commendation excites and encourages, but it also inspires vanity and presumption. We must, therefore, keep a just temper, and hold an even hand between these two inconveniencies, after the example of Isocrates in the case of Ephorus and Theopompus, who were of, a very different character. This great master, who was as successful in his instructions as his writings (as appears from his scholars and his books), making use of a bridle to give a check to the vivacity of the one, and a spur to awaken the sluggishness of the other, did not aim at reducing them both to the same standard.[‡] His object in taking away from the one and adding to the other, was to carry each of them to that perfection which their natural capacity would admit of.

This model we must follow in the education of children. They carry within them the principles, and, in a manner, the seeds of all virtues and vices; and the principal point is thoroughly to study at first their genius and character, to become acquainted with their humor, their disposition and talents, and, above all, to discover their passions and prevailing inclinations, not with a view or expectation of entirely changing their temper,—of making him gay, for instance, who is naturally grave, or him serious who is of a lively and cheerful disposition. It is with certain characters as with personal defects; they may be somewhat redressed, but not absolutely cured. Now the way of growing thus acquainted with the children is to give them a great liberty to discover their inclinations whilst young, to let them follow their natural bent in order to discern it the better, to comply with their little infirmities to encourage them to let us see them, to observe them whilst they think little of it, especially at their play, when they show their tempers most; for children are naturally plain and without reserve, but as soon as they think themselves taken notice of, they throw themselves under a restraint, and keep upon their guard.

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[*] *Quintil.* lib. 1, cap. 3.

[†] *Senec. de Ira*, lib. 2, cap. 21.

[‡] *Quintil.* lib. 2, cap. 8; *Cic.* lib. 3, *de Orat.* n. 36.

It is of great moment also to distinguish the nature of their faults. In general, we may hope that those wherein age, bad education, ignorance, and being seduced, and ill-example have any share, are not without remedy; and, on the other hand, we may believe that such are naturally rooted in the mind and in the corruption of the heart, will be very difficult to be got over, such as double-dealing and hypocrisy, flattery, an inclination to tell stories, to sow divisions, to envy and detraction, a disposition to scoff, and especially at the instructions that are given them, and at things sacred, a natural opposition to reason and what is a consequence of it, a readiness to take things otherwise than they are meant.*

8. TO SECURE AUTHORITY OVER THE CHILDREN.

By authority, I mean a certain air and ascendant which inspires respect and procures obedience. 'Tis neither age nor height, the tone of the voice of threatening, by which this authority is to be obtained, but an equal disposition of mind firm and moderate, which is always master of itself, is guided only by reason, and never acts by fancy or passion.

It is this qualification and talent which keeps all in order, establishes an exact discipline, sees that orders are observed, saves the trouble of reprimands, and prevents almost all punishments. Now it is from the very first entrance upon their government that parents and masters should take this power upon themselves. If they do not seize upon this favorable moment, and place themselves early in this authority, they will have all the pains in the world to do it afterwards, and the child will domineer at last. There is, deep rooted in the heart of man, a love of independence, which discloses itself from our childhood, or even at the breast. What mean those cries, those tears, the threatening gesture, and the eyes sparkling with rage, in an infant who is resolved to gain his point with all his force, or is raised to jealousy against another? "I have seen," says St. Augustine, "a child burning with jealousy. He could not yet talk, but with a pale countenance could cast a furious look at another child who was sucking with him at the same breast." †

Here we have the time and moment pointed out for subduing this bad inclination in a child, by inuring him, from the cradle, to get the better over his desires, not to pursue his own fancies; but, in a word, to yield and obey. If we never gave children what they cried for, they would learn to go without it, nor would there be so much bawling and uneasiness before they were brought to temper, and consequently they would not be so troublesome to themselves or others as they are.

I do not mean absolutely to disallow every indulgence to children. I am very far from such a disposition. I say only, we must not give them what they cry for; and if they redouble their importunity to obtain it, we must let them know that they are expressly refused it for that very reason; and this must be held as an indisputable maxim, that, after they have once been refused anything, we must resolve never to grant it to their crying or importuning, unless we would teach them to become impatient and peevish, by rewarding them for their peevishness and impatience.

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* *Lettres de piété*, tom. i.

† *S. August. Conf.* lib. 1, cap. 7.

We see with some parents, that the children never ask for anything at table, whatever is set before them, but take all that is given them, with pleasure and thankfulness; in other houses, they ask for everything they see, and must be served before all the company. Now whence arises this remarkable difference, but from the different education they have had? The younger children are, the less their irregular desires should be satisfied.

What I have said of children in their childhood, may be applied to them at any other age. The first care of a master is to study and sound a new scholar. There is nothing he does not attempt, no industry or artifice he omits, to get the better of him if he can. When he sees all his pains and cunning is to no purpose, and that the master calmly and quietly opposes to them a gentle and reasonable resolution, which always ends in making himself obeyed, he then yields and cheerfully submits, and this kind of little war, or rather skirmish, where, on both sides, they have tried each other's forces, is happily concluded with a peace and a good understanding, which make them easy all the rest of the time they are to live together.

4. TO MAKE ONE'S SELF BELOVED AND FEARED.

The respect upon which the authority I have spoke is founded, includes two things, fear and love, which lend each other a mutual assistance, and are the two great springs and hinges of all government in general, and of the conduct of children in particular. As they are of an age wherein reason scarce begins to show itself, it is requisite that fear should sometimes be called into its assistance, and take its place; but if it comes alone, and the allurement of pleasure does not follow close at its heels, it is not long regarded, and its instructions produce but a slight effect, which soon vanishes upon the hopes of impunity. Hence it happens that, in point of education, the greatest skill lies in knowing how to blend discreetly together a force which shall keep children within due bounds without discouragement, and a mildness which shall gain upon them without indulging them too much. *Sit rigor, sed non exasperans; sit amor, sed non emolliens.*[*] On one hand, the master's mildness removes whatever is hard and austere from his office of command, and blunts the point of it. *Hebetat aciem imperii,* as Seneca beautifully expresses it. On the other hand, his prudent severity fixes and restrains the lightness and inconstancy of an age which, as yet, admits but of little reflection, and is incapable of governing itself. It is, therefore, this happy intermixture of mildness and severity, of love and fear, which procures the master authority, which is the soul of government, and inspires the scholars with respect, which is the firmest band of obedience and submission, in such sort, however, that gentleness and love must be preeminent on both sides.

But some will say, though this manner of governing children by kindness and gentleness is easy, perhaps, to a private tutor, is it practicable in the case of a principal of a college, a regent of a class, or a master who has a great many scholars in one common chamber? And how is it possible, in all these places, to keep up an exact discipline, without which no good is to be hoped for, and at the same time to gain the love of the scholars? I own that nothing is more difficult in this circumstance than to keep up a just medium between too great severity and an excessive indulgence; but the thing is not impossible, since we see it practised by persons who have the rare talent of making themselves feared, and still more beloved. The whole depends upon the behavior of the masters. If they are such as they should be, they will meet with success proportionable to their desires. Quintilian has pointed out to us the qualities of a good master, and how he may gain the affection of his scholars:

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[*] *St. Greg. Pap.*

> A master should principally assume a fatherly affection for his scholars, and look upon himself as filling the place of those who committed them to him; whence he must exercise the gentleness, patience, and bowels of good nature and tenderness which are natural to parents.
>
> He must not be vicious himself, nor allow of vice in others; he must be severe without roughness, and gentle without indulgence, for fear of being hated or despised.
>
> He must not be easily carried away with anger and passion, nor shut his eyes upon such faults as deserve to be corrected.
>
> In his manner of teaching he must be plain, patient, and exact, and require more a constancy and assiduity of diligence in his scholars, than an excess of labor; he must take pleasure in answering all the questions that shall be put to him, and be even beforehand with them in asking questions of them, if they apply not to him.
>
> He must not refuse, upon proper occasions, to give them the praises they deserve, but not be too lavish in bestowing his commendations; for as the one occasions discouragement, the other gives rise to a dangerous security.
>
> If he is obliged to reprimand them, he must be neither severe nor reproachful. For what gives many an aversion to study is, that certain masters rebuke them with a scornful air, as though they were the objects of their hatred.
>
> He must speak often to them of virtue, and always with high encomiums; he must lay it constantly before them under an advantageous and agreeable form, as the most excellent of all blessings, and most worthy a reasonable man, and most honorable to him as a quality absolutely necessary to procure the affection and esteem of all mankind, and as the only means of being truly happy. The more frequently he puts them in mind of their duty, the less he will be obliged to punish them. . . . Let him every day say something to them which they may carry away with them, and be the better for. Though what they read may furnish them with abundance of good examples, what is expressly directed to them has a very different force, and produces a quite different effect, especially if it comes from a master whom children that are well brought up both love and honor. For it cannot be imagined how easily we are led to copy after the persons of whom we have a favorable opinion.

These are the qualifications which Quintilian requires in a master of rhetoric, and they equally belong to all such as are entrusted with the instruction of youth.

5. *Of Correction.*

In the first place, I shall point out the inconveniences and dangers of the use of the rod; in the second, I shall lay down the rules we ought to follow in this kind of correction.

First. The most common and shortest way of correcting children is by the rod, which is almost the only remedy that is known or made use of by those who are intrusted with their education. But this remedy becomes more dangerous than the evil they would cure, if employed out of reason or beyond measure. For besides that the corrections of the rod and the lash, we are now speaking of, have something indecent, mean, and servile in them, they have no fitness in themselves to remedy any fault committed, nor is there any cause to apprehend that such a correction may become useful to a child, if the shame of suffering for having done ill has not a greater power over his mind than the punishment itself. Besides, these corrections give an incurable aversion to the things we should endeavor to make them love. They do not change the humor, nor work any reformation in the natural disposition, but only restrain it for a time, and serve to make the passions break out with more violence when they are at liberty. They often stupefy the mind, and harden it in mischief. For a child, that has so little honor as to be insensible to reproof, will accustom himself to blows like a slave, and grow obstinate against punishment.

I am far from condemning in general the use of the rod, after what has been said of it in several places of Scripture, and especially in the Book of Proverbs: 'He that spareth his rod hateth his son, but he that loveth him chasteneth him betimes;' 'Foolishness is bound in the heart of a child, but the rod of correction shall drive it far from him.' The Holy Scripture, by these words and others of a like nature, may, perhaps, design punishment in general, and condemn the mistaken tenderness and blind indulgence of parents who shut their eyes upon the vices of their children, and thereby render them incorrigible. But supposing that the word rod is to be taken literally, it is very probable that this correction is advised for such dispositions as are sturdy, rough, indocile, untractable, and insensible to reproof and honor. For can we imagine that the Scripture, which abounds in charity and gentleness, and is so full of compassion for the weaknesses of a more advanced age, should advise to treat children with severity when faults are frequently rather the effects of levity than wickedness?

I therefore conclude that the punishments we are here speaking of should be employed very seldom, and for faults of consequence. These corrections are like the violent remedies which are used in violent diseases; they purge, but alter the constitution and wear out the organs. A mind controlled by fear is always the weaker for it. Whoever, therefore, has the care of guiding others, if he would heal, should first use gentle remonstrances, try what he can do by persuasion, give a relish, if he can, for honesty and justice, inspire an hatred against vice, and a value for virtue. If this first attempt does not succeed, he may pass to stronger methods and sharper reproaches; and lastly, when all this has been employed to no purpose, he must come to corrections, but by degrees, still leaving the hopes of pardon in view, and reserving the last for extreme faults and desperate ills.*

Let us compare a man of this wisdom and moderation with a master that is hasty, passionate, and violent, such as Orbilius was, whom his scholar, Horace, styles *Plagosus;* † or with a person whom Tully entrusted with the education of his children, who was passionate to a degree of madness. This was a slave who had been set free, whom Tully highly valued in other respects, and in whom he placed a full confidence.‡ *Dionysius quidem mihi in amoribus est. Pueri autem aiunt eum* FURENTER IRASCI. *Sed homo nec doctior, nec sanctior fieri potest.* For my own part, I do not here discern either good understanding or prudence in Tully. Prejudiced in favor of this freedman, he does not seem to give heed to the blame that was cast upon him, as if such a fault could be covered by learning, or subsist with the quality of a man of very great probity, *sed homo nec doctior, nec sanctior fieri potest.* He was afterwards undeceived when that cowardly and perfidious slave had betrayed him.

'Which of the two masters,' says Seneca,§ 'shall we most esteem? He who strives to correct his scholars by prudent advice and motives of honor, or another who shall lash them to pieces for not repeating their lesson as they ought, and faults of a like nature? If we undertook to manage a horse in this manner, should we tame him by thus beating him? Or would it not be a certain way of making him skittish, unruly, and restive? An able groom can manage him better by caressing him with a gentle hand; and why must men be treated with more cruelty than beasts?'

Second. 1. If children are early accustomed to submission and obedience by the steadfast behavior of parents and masters, and care is taken never to swerve from it till such time as fear and respect are grown familiar to them, and there appears not the least shadow of constraint in their submission and obedience, this happy habit contracted in their childhood will almost spare the necessity of any after punishment.

2. It is of great consequence rightly to discern what faults deserve to be punished, and what should be pardoned. In the number of the last I place all such as happen, through inadvertency or ignorance, and which cannot pass for the effects of malice and a bad intention, as only those which arise from the will can make us culpable. An officer of Augustus, as he was one day walking out with him, was so frightened at the sight of a wild boar, that made directly toward them, that he saved himself by exposing the emperor to danger. The fault was considerable, but as it was not designed, Augustus was satisfied with turning it into a jest.

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* *Seneca, De Ira,* lib. 1, c.

† Ep. 1, lib. 2.

‡ *Ad Att.* Ep. 1, lib. 6.

§ *Senec. De Clem.* lib. 1, cap. 26.

I place in the same rank all the faults of levity and childhood which will be infallibly corrected by time and age.

Neither do I think we ought to use the correction of a rod for such failures as children may commit in learning to read, write, or dance, or even in learning the languages, Latin, Greek, etc., except in certain cases I shall mention. Other punishments should be contrived for such faults as do not seem to proceed from any ill disposition of the heart, or an inclination to shake off the yoke of authority.

3. It is a great branch of merit in masters to be able to find out different kinds and degrees of punishments wherewithal to correct their scholars. It depends upon them to fix an idea of shame and disgrace upon a thousand things which are indifferent of themselves, and only become corrections by the idea that is fixed to them. I know a school of poor children, where one of the greatest and most sensible punishments that is inflicted upon such as are naughty, is to make them sit on a separate bench, with their hats on, when any considerable person comes into the school. 'Tis a torment to them to remain in that state of humiliation whilst the rest are standing and uncovered. A thousand things of the like nature may be invented, and I mention this instance only to show that the whole depends upon the constant ingenuity of the master. There are children of quality which have been kept in as much awe through an apprehension of going without shoes, as others of being whipped.

4. The only vice, in my opinion, which deserves a severe treatment, is obstinacy and mischief; but then this obstinacy must be voluntary, certain, and clearly expressed. We must not give this name to faults of levity and inconstancy, into which children, who are naturally forgetful and heedless, may frequently relapse, without leaving us room to imagine that they proceed from a bad disposition. I suppose that a child has told a lie. If it was through a violent fear, the fault is much less, and deserves only to be gently reprimanded. If it is voluntary, deliberate, and obstinately persisted in, it is then a fault indeed, and certainly deserves to be punished. Yet I do not think that for the first time we should yet make use of the correction of the rod, which is the last extremity children should be exposed to. 'Will a father of good understanding,' says Seneca, 'disinherit a son for his first fault, how considerable soever it may be? No, doubtless. He will first use his utmost endeavors to make his son return to his duty, and to correct, if possible, his bad disposition. Nor will he have recourse to such an extremity till the case is grown desperate, and his patience quite worn out. A master must follow the like conduct in proportion.'

5. I would say the same of indocility and disobedience, when obstinately persisted in, and accompanied with an air of contempt and rebellion.

6. There is another sort of obstinacy which relates to study, and may be called an obstinate sloth, which ordinarily occasions a great deal of trouble to masters,—when children will learn nothing unless they are compelled to it by force. There is nothing, I own, more perplexing or

difficult to manage than such characters, especially when insensibility and indifference are joined to sloth, as is very usual. In this case, a master stands in need of all his prudence and industry to render study, if not amiable to his scholar, at least supportable, by mixing force with mildness, threatenings with promises, and punishments with reward. And when all has been employed to no purpose, we may then come to correction, but not make it too common and habitual; for then the remedy is worse than the disease.

7. When it is judged necessary to use correction, the time and manner of using it should be considered. Diseases of the soul require to be treated at least with as much skilfulness and address as those of the body. Nothing is more dangerous than a remedy misapplied and ill-timed. A wise physician waits till the patient is able to bear it, and in this view tarries for the favorable moments of administering it.

The first rule, therefore, is never to punish a child the moment he commits a fault, for fear of exasperating him, and causing him to commit new ones by carrying the matter to an extremity, but to allow him time for recollection, to reflect upon what he has done, and grow sensible that he has been to blame, and, at the same time, that his punishment is both just and necessary, and thus put him in a condition of being the better for it.

The master, again, must never punish with passion or in anger, especially if the fault personally regards himself, such as want of respect, or any abusive word. He must call to mind what Socrates said excellently well to a slave that had misbehaved toward him: '*I would treat thee as thou deservest, was I not in a passion.*'[*] It were to be wished that all persons who have authority over others were like the laws, which punish without anger or emotion, and out of the sole motive of justice or public good.[†] If the master discover himself to be ever so little moved by a change of countenance or alteration of the tone of his voice, the scholar soon perceives it, and finds that this fire was kindled not through a zeal for duty, but from the heat of passion. And this is enough to make him lose the whole fruit of the punishment; because children, young as they are, know that reason alone has a right to correct them.

As punishment should seldom be administered, all possible care is required to make it beneficial. Let a child see, for instance, that you have done all you could to avoid coming to this extreme; seem to be concerned that you are under a necessity of exercising it against your inclination; talk before him with other persons, how unhappy they are who are so void of reason and honor as to stand in need of being corrected; withdraw your usual marks of friendship, till you see that he stands in need of consolation; make this chastisement public or private, according as you shall judge it most useful for the child either to be exposed to shame or to see that he is spared; reserve this public shame as a last remedy; make use, sometimes, of a reasonable person to talk with him, and tell him what it is not yet fit for you to tell him yourself,—one who may cure him of his false shame, and dispose him to submit; to whom the child, in the heat of his passion, may open his heart more freely than he durst do before you; but be very careful that you are never seen to demand any other submissions than such as are reasonable and necessary. Endeavor to bring him to a self-condemnation, and that you may be left to the liberty of lessening the punishment which he has consented to. These general rules must be applied by every master according as his particular occasions require.

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[*] *Senec.* lib. 1, *de Ira*, cap. 15.

[†] *Cic. de Offic.* lib. 1, n. 89.

But if the child that is to be punished is neither to be moved by a sense of honor or shame, care must be taken that in the first correction he may feel a sharp and lasting impression, that fear, at least, for want of a more noble motive, may keep him to his duty.

I have no need to take notice that a box of the ear, blows, and other treatments of the like sort, are absolutely disallowable in masters.

6. *Of Reprimands.*

To make reprimands useful, there are, in my opinion, three things principally to be considered,—the subject, the time, and the manner of making them.

1. It is a very common mistake to use reprimand for the slightest faults, and such as are almost unavoidable in children, which takes away all their force, and makes them lose all their advantage. For by growing familiar to them, they are no longer affected with them, and shall even make a jest of them. I make a great difference between admonitions and reprimands. The first savor less of the authority of a master than the affection of a friend. They are always accompanied with an air and tone of gentleness, which gives them a more agreeable reception; and for this reason they may more frequently be used. But as reprimands always irritate that fondness we have for ourselves, and often assume an air and language of severity, they should be reserved for more considerable faults, and consequently be more seldom used.

2. The master's prudence consists in carefully studying and watching for the favorable moment when the mind of the child shall be most disposed to profit by correction.

Do not, therefore, reprimand a child, says M. de Fénelon, in his first emotion, or your own. If you do it in yours, he will find that you have been guided by humor and inclination, and not by reason and friendship, and you will lose your authority without remedy. If you chide him immediately, his mind is not at liberty enough to own his fault, to conquer his passion, and perceive the importance of your advice. You likewise expose the child to lose the respect he owes you. Show him always that you are master of yourself, and nothing will let him see it better than your patience. Watch a favorable opportunity for several days, if it is requisite to time well a correction.

3. Much care and caution is required in our meting correction and reprimand. We must leave nothing for a child to discern in us, that we may hinder the effect of it. We must avoid raising his ill-will by the

severity of our expressions, his anger by exaggerations, or his pride by expressions of contempt.*

We must not heap upon him such a multitude of reprehensions as to take from him the hope of being able to correct the faults he is reproached with. It might be advisable, likewise, not to tell a child his fault without adding some way how to get over it. For correction, when it is sharp, is apt to occasion chagrin and discouragement.

We must avoid giving him any occasion to think that we are prejudiced, lest he should thence take occasion to defend the faults that are urged against him, and attribute our admonitions to our prejudice.

Neither must there be any room left for him to believe that they are occasioned by any interest or particular passion, or, indeed, by any other motive than that of his advantage.

We are sometimes obliged, says Tully, to raise our voice a little in correction, and to use somewhat sharper expressions, but this should be very seldom; as physicians make use of certain remedies only in necessity. Further, we must be careful to avoid all anger and severity in these reproaches, for they can be of no service, and the child should see that, whatever sharpness we express in our reproofs, it is unwillingly, and only for his good.

We may conclude that reprimands have had all the success that can be expected from them, when they lead a boy to a sincere confession of his faults, to desire that he may be told of them, and to receive the instructions that are given him with docility. He has already made a great progress who is desirous of doing it. It is a certain mark of a solid change to have our eyes open to the imperfections which before were unknown to us; as it is a reason to hope well of a sick person when he begins to be sensible of his ailment.

There are some children of so happy and so tractable a temper that it suffices to show them what they must do, and without standing in need of long instructions from a master, they shall seize upon what is good and honest at the first signal, and give themselves up entirely to it, *Rapacia virtutis ingenia.* You would say they had in them some secret sparks of every virtue, which, in order to unfold themselves and catch fire, require only a slight blast and a bare notice. These characters are scarce, and they have seldom need of any guides.

There are others who have, indeed, a pretty good capacity, but seem at first of a slow apprehension, either from want of taking due pains, or because they have been brought up in too tender a manner, and educated in an entire ignorance of their duty, have contracted a great number of ill habits which are like a rust, difficult to be rubbed off. A master is absolutely necessary to boys of this character, and seldom fails of subduing these faults when he strives to do it with mildness and patience.

7. *Reasoning with the Children; Use of Praises and Rewards.*

I call reasoning with the boys, the acting always without passion and humor, and giving them a reason of our behavior towards them. It is requisite, says M. de Fénelon, to pursue all possible means to make the things you require of them agreeable to the children. Have you anything displeasing to propose to them? Let them know that the pain will soon be followed by a pleasure; show them always the usefulness of what you teach them; let them see the use of it with reference to conversation with the world and the duties of particular stations. This, tell them, is to enable you to do well what you are one day to do; 'tis to form your judgment, 'tis to accustom you to reason well upon all the affairs of life. It is requisite to show them a solid and agreeable end of their actions, which may support them in their labor, and never pretend to oblige them to the performance by a bare absolute authority.

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* *Cic.* lib. 1, *de Offic.* n. 88.

If the case requires punishment or chiding, 'twill be proper to appeal to themselves as judges, to make them thoroughly sensible of the necessity of using them in that manner, and to demand of them whether they think it possible to act otherwise. I have been sometimes surprised in conjunctures where the just but grievous severity of their correction or public reprimand might have provoked and exasperated the scholars, to see the impression the account I gave them of my conduct has made upon them, and how they have blamed themselves, and allowed that I could not treat them otherwise. For I owe this justice to most part of the boys I have brought up, to own here that I have almost always found them reasonable, though not exempt from faults. Children are capable of hearing reason sooner than is imagined, and they love to be treated like reasonable creatures from their infancy. We should keep up in them this good opinion and notion of honor which they pretend to, and make use of it, as much as possible, as an universal means to bring them to the end we propose.

They are likewise very much affected with praise. It is our duty to make an advantage of this weakness, and strive to raise it in them to a virtue. We should run a risk of discouraging them were we never to praise them when they do well; and though we have reason to be afraid of commendations, lest we should increase their vanity, we must strive to make use of them for their encouragement without making them conceited; for of all the motives that are proper to affect a reasonable soul, there are none more powerful than honor and shame; and when we have once brought the children to be sensible of it, we have gained everything. They find a pleasure in being commended and esteemed, especially by their parents and those upon whom they depend. If, therefore, we caress them and commend them when they do well; if we look coldly and contemptibly upon them when they do ill, and religiously observe this kind of behavior toward them,—this twofold treatment will have a much greater effect upon their mind than either threatenings or punishments.

But to make this practice useful, there are two things to be observed. First, when the parents or masters are displeased with a child, and look coldly upon him, it is requisite that all those who are about him should treat him in the same manner, and that he never finds any consolation in the caresses of governesses or servants; for then he is forced to submit, and naturally conceives an aversion for the faults which draw upon him a general contempt. In the second place, when parents or masters have shown themselves displeased, they must be careful, contrary to the common custom, not presently to put on the same cheerfulness of countenance, or show the same fondness to the child as usual, for he will learn not to mind it when he knows that chiding is a storm but of a short duration, which he need only suffer to pass by. They must not, therefore, be restored to favor without difficulty, and their pardon be deferred till such time as their application to do better has proved the sincerity of their repentance.

Children may be rewarded by innocent plays intermixed with some industry; by walking abroad where the conversation may be advantageous; by little presents, which may be kinds of prizes, such as pictures or prints; by books neatly bound; by the sight of such things as are curious and uncommon in arts and professions,—as, for instance, the manner of making tapestry at the Gobelins, of melting of glass, painting, and a thousand other things of that kind. The industry of parents and masters lies in the invention of such rewards, in varying them, and making them desired and expected; keeping always a certain order, and beginning constantly with the most simple, in order to make them last as long as possible. But in general they must keep exactly to what they have promised, and make it a point of duty and indispensable honor never to disappoint the children.

8. *Strict Observance of Truth.*

Dissimulation, tricking, and bad excuses come very near to lying, and infallibly lead to it. A child should be told that he should rather be pardoned for twenty faults, than a bare dissimulation of the truth for hiding one only by bad excuses. When he frankly confesses what he has done, fail not to commend his ingenuity, and pardon what he has done amiss without ever reproaching him with it, or speaking to him of it afterwards. If this confession becomes frequent, and turns into a habit, only to escape without punishment, the master must have less regard to it, because it would then be no more than a trick, and not proceed from simplicity and sincerity.

Everything that the children see or hear from their parents or masters must serve to make them in love with truth, and give them a contempt for all double dealing. Thus they must never make use of any counterfeit pretence to quiet them or to persuade them to do what they have a mind, or make them any promises or threatenings without their being sensible that the performance will soon after follow. For by this means they will be taught tricking, to which they have already but too much inclination.

To prevent it they must be brought not to stand in need of it, and be taught to tell ingenuously what pleases them or what makes them uneasy. They must be told that tricking always proceeds from a bad disposition, for nobody uses it but with a view to dissemble,—as not being such an one as he ought to be, or from desiring such things as are disallowable, or if otherwise, from taking dishonest means to come at them. Let the children see how ridiculous such tricks are as they see practised upon others, which have generally a bad success, and serve only to make them contemptible. Make them ashamed of themselves when you catch them in any dissimulation. Take from them, from time to time, what they are fond of, if they have endeavored to obtain it by any trick, and tell them they shall have it when they ask for it plainly and without artifice.

'Tis upon this point especially they must be put in mind of their honor. Make them comprehend the difference that there is between a child that loves truth and sincerity, upon whose word one may rely, in whom one may fully confide, and who is looked upon as incapable not only of lying and forgery, but of the least dissimulation; and another child who is always suspected and distrusted, and never believed, even though he speaks truth. We should carefully set before them what Cornelius Nepos observes of Epaminondas (and Plutarch says the same of Aristides), that he was so fond of truth that he never told a lie, not even in a jest.

9. *Boys must be Genteel, Neat, and Exact.*

Good breeding is one of the qualities which parents most desire in their children. The value they set upon it arises from their conversation with the world, where they find that almost everything is judged of by its outside. In short, the want of politeness takes off very much from the most solid merit, and makes virtue itself seem less valuable and lovely. A rough diamond can never serve as an ornament; it must be polished before it can be shown to advantage.

In talking thus I do not mean that we should exercise the children, or bring them up by measure and method to all the formal ceremonies which are fashionable in the world. Such treatment will only give them false notions, and fill them with a foolish vanity. Besides, this methodical civility, which consists only in forms of insipid compliments and the affectation of doing everything by rule and measure, is often more offensive than a natural clownishness. A behavior not over courteous, a bow ill made, a hat clumsily taken off, and a compliment ill turned, may deserve some little notice to be taken of them in an easy and gentle manner, but does not deserve sharp chiding or the being exposed to shame before company, and much less to be punished with severity. The going abroad into the world will soon correct these misdemeanors.

But the object is to go to the principle and root of the evil, and to conquer certain dispositions in the boys, which are directly opposite to the rules of society and conversation; such as a savage and clownish rudeness, which makes them careless about what may please or displease those that are about them; self-love, which is concerned only in procuring its own profit and advantage; a haughtiness and pride which tempt us to look upon everything as our due, without our being under any obligation to others; a spirit of contradiction, finding fault, and raillery, which blames everything, and takes pleasure only in giving pain. These are the faults against which we must declare an open war, Such boys as have been accustomed to be complaisant toward their companions, to oblige them to yield to them upon occasion, to say nothing which may offend them, and not be easily offended themselves at the discourse of others,—boys of this character, when they come abroad into the world, will soon learn the rules of civility and good breeding.

It is also to be wished that children should be accustomed to neatness, order, and exactness; that they take care of their dress, especially on Sundays and holidays, and such days as they go abroad; and that everything should be set in order in their chambers and upon their tables, and every book put in its place when they have done with it; that they should be ready to discharge their different duties precisely at the time appointed. This exactness is of great importance at all times and in every station of life.

All this is to be wished for, but must not, in my opinion, be exacted with severity, nor under pain of correction. For we must always distinguish the faults which arise from the levity of their age, from such as spring from indocility and perverseness. My method was to bring the boys to be very civil to such strangers as entered into the court during their recreation, and almost scrupulously exact in repairing to every exercise at the first sound of the clock, but not by menaces or corrections. I publicly used to commend them for their civility to strangers, who complimented me upon it, and for the readiness wherewith they quitted their play, because they knew it would please me. I sometimes added, that though some of them were wanting in their little duties, I judged it must be through inadvertency, which was not surprising in the heat of play. I desired them to be more careful for the future, and to follow the example of the greatest part of their companions; and I succeeded better by these civilities than I could have done by all the chiding and menaces in the world..

10. *Study must be made Agreeable.*

This point depends very much on the first impressions, and it should be the great care of masters who teach children their letters, to do it in such manner that a child who is not yet capable of being fond of his book should not take an aversion to it, and the dislike continue when he grows up. For this reason, says Quintilian, his study must be made a diversion to him. The master must proceed by asking him easy questions. He must be encouraged by commendation, and allowed to set some value upon himself, and be pleased with having learned anything. Sometimes what he refuses to learn must be taught another, to raise his jealousy. We must enter into little disputes with him, and let him think that he has often the better; we must entice him likewise by little rewards, which children at that age are very fond of.

But the great secret, says Quintilian further, to make children love their books, is to make them fond of their master. In this case they willingly give ear to him, become tractable by him, strive to please him, and take a pleasure in his lessons. They readily receive his advice and correction, are much affected with his commendation, and strive to merit his friendship by a proper discharge of their duty.

There is implanted in children, as in all mankind, a natural spirit of curiosity. or desire of knowledge and information, of which a good use may be made toward rendering their study agreeable. As everything is new to them, they are continually asking questions, and inquiring the name and use of everything they see. And they should be answered without expressing any pain or uneasiness. Their curiosity should be commended, and satisfied by clear and express answers, without anything in them that is deceitful or illusory; for they will soon find it out and be shocked at it.

In every art and science the first elements and principles have something in them that is dry and disheartening; for which reason it is of great service to abridge and facilitate the rudiments of the languages which are taught to children, and to take off from the bitterness of them as agreeably as we can.

When they are privately brought up, a careful and skilful master omits nothing that may make study agreeable to them. He takes their time, studies their taste, consults their humor, intermixes diversion with labor, seems to leave the choice to them, does not make their study regular, stirs them up to it sometimes by refusing it, and by the cessation, or, rather, interruption of it. In a word, he puts on a thousand shapes, and invents a thousand artifices to compass what he aims at.

This way in college is not practicable. In a common chamber and a numerous class, discipline and good order require an uniform rule, and that all should follow it exactly; and herein lies the great difficulty of managing them. A master must have a good capacity, a great deal of skill to guide and direct the reins of so many different characters, whereof some are brisk and impetuous, others slow and phlegmatic; whereof some want the spur, and others the bridle,—to manage, I say, all these dispositions at the same time, and yet so as to make them all move by concert, and lead all to the same point, notwithstanding this difference of temper. It must be owned that, in the business of education, 'tis here that the greatest ability and prudence are required.

This is only to be obtained by great gentleness, reason, moderation, coolness, and patience. This great principle must be always in view, that study depends upon the will, which admits of no constraint. *Studium discendi voluntate quae cogi non potest constat.* We may confine the body, make a scholar sit at his table against his inclination, double his labor by punishment, force him to finish a task that is imposed on him, and, for that end, take away from him his play and recreation; but can laboring thus upon force be properly called study? And what will follow upon it but the hatred both of books and learning and masters, too, very often as long as they live? The will, therefore, must be gained, and this can only be by mildness, friendliness, and persuasion, and, above all, by the allurement of pleasure.

As we are born idle, enemies to labor, and still more to constraint, it is not surprising that, as all the pleasure lies on one side, and all the trouble on the other—all the trouble in study, and all the pleasure in diversion—a child should bear the one with impatience, and run zealously after the other. The skill of the master lies in making study agreeable, and teaching his scholar to find a pleasure in it; to which end play and recreation may very much contribute.

11. *Rest and Recreation.*

A great many reasons oblige us to grant rest and recreation to the children. First, the care of their health, which should go before that of knowledge. Now nothing is more prejudicial to it than too long and constant an application, which insensibly wears and weakens the organs, which in that age are very tender, and incapable of taking great pains. And this gives me an opportunity of advising and entreating parents not to push their children too much upon study in their early years, but to deny themselves the pleasure of seeing them make a figure before their time. For besides that these ripe fruits seldom come to maturity, and their early advancements resemble those seeds that are cast upon the surface of the earth, which spring up immediately, but take no root, nothing is more pernicious to the health of children than these untimely efforts, though the ill effect be not immediately perceived.

If they are prejudicial to the body, they are no less dangerous to the mind, which is exhausted and rendered dull by a continual application, and, like the earth, stands in need of a stated alternative of labor and rest, in order to preserve its force and vigor.

Besides, as we have already observed, the boys, after they have refreshed themselves awhile, return to their studies with more cheerfulness and a better heart, and this little relaxation animates them with fresh courage, whereas constraint shocks and disheartens them.

I add with Quintilian, and the boys will doubtless agree to it, that a moderate inclination for play should not displease in them, as it is often a mark of vivacity. In short, can we expect much ardor for study in a child who, at an age that is naturally brisk and gay, is always heavy, pensive, and indifferent even for its play?

But in this, as in everything else, we must use discretion and observe a medium which consists in not refusing them diversion, for fear they should grow out of love with study, and likewise in not granting too much, for fear they should grow habituated to idleness.

The choice in this point requires some care; we need be under no concern about procuring them pleasures,—they invent enough of themselves. It suffices to leave them to themselves, and observe them without constraint, in order to keep them in temper when they grow too warm.

The diversions they love best, and which are likewise most suitable to them, are such as are attended with some bodily motion. They are satisfied if they do but often change place. A ball, a kite, a top, are an high delight to them, as also walking and running.

There are plays of ingenuity, wherein there is instruction mixed with diversion, which may sometimes find a place when the body is less disposed for motion, or the time and season oblige them to be confined within doors.

As play is designed for a recreation, I question whether we ought commonly to allow the children such as require almost as much application as study. James the first, king of Great Britain, in the instructions he left his son how to govern well, amongst other advice concerning play, forbids him chess, for this reason, that it is rather a study than a recreation.

Plays of hazard, such as cards and dice, which are now become so fashionable, deserve still more to be forbid the boys. 'Tis a shame to our age, that rational persons cannot pass a few hours together without cards in their hands. It will be well for the scholars if they carry from college, and long retain, an ignorance and contempt for all diversions of this nature.

It is a principle in education, which cannot be too much inculcated upon parents and masters, to inspire children in general with a taste for such things as are simple. They should neither feed upon delicate dishes, nor be entertained with elegant diversions. The temper of the soul is corrupted, as well as the taste, by the pursuit of sharp and poignant pleasures; and as the use of ragouts makes common food that is plainly dressed seem tasteless and insipid, so great emotions of the soul procure a disrelish to the ordinary diversions of youth.

We see parents, says M. de Fénelon, that are otherwise well-designing people, carry their children themselves to the public shows, and pretend by thus mixing poison with healthful food, to give them a good education, and would look upon it as cruel and austere to deny them this medley of good and evil. He must be very little acquainted with human nature, who does not see that this sort of diversion cannot fail of creating a disgust in the boys for the serious and busy life, to which, however, they are designed, and make them consider plain and innocent pleasures as insipid and insupportable.

12. *Tuition of Boys by Discourse and Example.*

What I have lately said shows how much this is an indispensable duty of masters. As it is often requisite to fortify the children beforehand against the discourses and examples of their parents, as well as against the false prejudices and false principles that are delivered in common conversations, and authorized by an almost general practice; they should be to them that guardian and monitor which Seneca so often speaks of, to keep them or deliver them from popular errors, and to inspire them with such principles as are conformable to right and sound reason. It is requisite, therefore, that they have a thorough sense of themselves; that they think and talk always of wisdom and truth. For nothing can be said before children without effect, and they regulate their fears and desires by the discourses they hear.

'Tis for this reason that Quintilian, as we have already observed, advises masters to speak often to their disciples of honesty and justice.

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'Tis for this reason that Quintilian, as we have already observed, advises masters to speak often to their disciples of honesty and justice.

And Seneca informs us of the wonderful effects which the lively exhortations of his produced upon him:

> It is scarce to be imagined how great an impression such discourses are capable of making; for the tender minds of youth are readily inclined to the side of virtue. As they are tractable, and not as yet infected by corruption, they easily yield to truth, provided an understanding advocate pleads its cause before them, and speaks in its favor. For my own part, when I heard Attalus inveigh against vice, error, and irregularity, I pitied mankind, and thought nothing great and valuable but a man that was capable of thinking as he did. When he undertook to set off the advantages of poverty, and to prove that whatever is more than necessary can be looked upon only as a useless charge and an inconvenient burden, he made me wish to go poor out of his school. When he exclaimed against pleasure, commended chastity, frugality, and purity, I found myself disposed to quit the most lawful and allowable pleasures.

There is still another shorter and surer way of conducting the boys to virtue, and this is by example. For the language of actions is far stronger and more persuasive than that of words. *Longum iter est per praecepta, breve and efficax per exempla.* 'Tis a great happiness for boys to be under masters whose lives are a continual instruction to them, whose actions never contradict their lessons, who do what they advise and shun what they blame, and who are still more admired when seen than when they are heard.

Something seems still to be wanting to what I have said in this chapter concerning the different duties of a master; and yet parents would surely think themselves very happy if they found such for their children; and yet I desire the reader to observe that all I have hitherto said has been drawn solely from Paganism; that Lycurgus, Plato, Tully, Seneca, and Quintilian have lent me their thoughts, and supplied the rules which I have laid down; that what I have borrowed from other authors does not go beyond their sphere, nor rise above the maxims and notions of the Heathen. Something, therefore, is still wanting to the duties of a master, and this remains to be spoke to under the last article.

13. *Christian Piety, Religion, and Zeal for the Children's Salvation.*

St. Augustine says, that though Tully's treatise, entitled 'Hortensius,' was very agreeable to him, and the reading of it had paved the way to his conversion by inspiring him with an eager desire after wisdom, there was, notwithstanding, still something wanting, because he found not there the name of Christ; and that whatever did not bear that sacred name, however well conceived, however elegantly written, and however true it might be, did not entirely carry away his heart.* I think, likewise, that my reader should not be wholly satisfied, but still find something wanting in what I have written concerning the duty of masters as they meet not there with the name of Christ, and discover no footsteps of Christianity in the precepts which relate to the education of Christian children.

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* *Conf.* lib. 3, cap. 4.

What, then, is a Christian master who is entrusted with the education of youth? He is a man into whose hands Christ has committed a number of children, whom He has redeemed with His blood, and for whom He has laid down His life; in whom He dwells, as in His house and temple; whom He considers as His members, as His brethren and co-heirs, of whom He will make so many kings and priests, who shall reign and serve God with Him and by Him to all eternity. And for what end has He committed them to his care? Is it barely to make them poets, orators, and men of learning? Who dare presume to say or even to think so? He has committed them to their care, in order to preserve in them the precious and inestimable depositum of innocence, which He has imprinted in their souls by baptism, in order to make them true Christians. This is the true end and design of the education of children, and all the rest are but the means. Now how great and noble an addition does the office of a master receive from so honorable a commission? But what care, what attention and vigilance, and, above all, how great a dependence upon Christ does it require?

In this last circumstance lies all the merit, and at the same time all the consolation of masters. They have need, in the government of children, of capacity, prudence, patience, mildness, resolution, and authority. How great a consolation is it to a master to be fully persuaded that Christ gives all these qualifications, and grants them to the humble and persevering petitioner, and that he may say to Him with the prophet, 'Thou, O Lord, art my patience and my strength, Thou art my light and my council, Thou subduest the little people under me whom Thou hast committed to my care. Leave me not to myself one moment, but grant me, for the direction of others, and for my own salvation, the spirit of wisdom and understanding, the spirit of council and strength, the spirit of knowledge and piety, and, above all, the spirit of the fear of the Lord.'

When a master has received this spirit, his work is done. This spirit is a master within, which dictates to him, and teaches him all that is requisite, and upon every occasion points out to him his duty, and teaches him to practise it. One great mark of his having received it, is that he finds in himself a great zeal for the salvation of the children; that he is affected with their dangers, and touched with their faults; that he oft reflects upon the value of the innocence which they have received in baptism; how difficult it is to recover it when once it is lost; what account must he give to Christ, who has placed him as a sentinel to guard it, if the enemy carries off so precious a treasure while he is asleep. A good master must apply to himself those words which God was continually resounding in the ears of Moses, the conductor of His people: 'Carry them in thy bosom, as a nurse beareth the sucking child.' He must experience somewhat of the tenderness and concern of St. Paul for the Galatians, 'for whom he felt the pains of childbirth, till Christ was formed in them.'

I cannot avoid applying here to the masters some of the instructions which are given in a letter to a superior upon her obligations, nor too earnestly exhort them to read that letter with care, which suits so well with their circumstances.[*]

1. The first means of preserving the talent which has been committed to your care, and to increase it, is to labor with fresh zeal to procure your own satisfaction. You are God's instrument towards these children; you must, therefore, be strictly united to Him. You are the channel, and, therefore, you should be filled. It is your part to draw down blessings upon others; you must not, therefore, turn them aside from falling upon your own head.

2. The second means is not to expect fruit if you do not labor in the name of Christ, that is, as He Himself labored in the sanctification of men. He began with giving an example of all the virtues He has required from them.[†] His humility and gentleness were astonishing. He gave His life and blood for His sheep. See here the example of shepherds, and discern your own. Never take your eyes from this divine model. Bring forth thus, thus train up your disciples, who are now become your children. Think less of chiding them than of procuring their love; and think only of gaining their love, in order to plant the love of Christ in their hearts, and after that, if possible, to blot you out of their minds.

3. The third means is to expect nothing from your own care, your own prudence, your own light and labor, but only from the grace of God. He rarely blesses those who are not humble. We speak in vain to the ears if He speaks not to the heart. We water and plant in vain, unless He gives the increase.

We think to do wonders by multiplying words. We think to soften the hardness of the heart by sharp reproaches, by humiliations and corrections. This may be useful sometimes, but it must be the grace of God that makes it so; and when we rely too much upon these outward means, we lay a secret obstacle in the way of grace, which is justly refused to human presumption and an haughty confidence.

4. If your discourse and cares have the blessing of God, do not attribute the success of them to yourself. Do not give ear to the secret voice of your heart, which applauds you for it. Hearken not to the commendations of men who mislead you. If your labor seems ineffectual, be not discouraged, nor despair either of yourself or others; but still go on in your duty. The moments which God has reserved to Himself are known only to Him. He will give you in the morning the reward of your labor in the night. It has seemed unprofitable, but not through your fault; the care was recommended to you, and not the success.

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[*] *Lettres de Morale et de Piété, Chez Jacq. Estienne.* tom. 1.

[†] 'He began to do and teach.'—Acts, i. 1, 'Mighty in word and in deed.'—Luke, xxiv. 19.

FRENCH SECONDARY SPECIAL SCHOOLS.

INTRODUCTION.

SECONDARY SCHOOLS, the oldest form of public instruction in France, and the main reliance of families for the liberal education of their sons before they pass into the Faculties of Superior Instruction, or the Special Schools of preparation for the civil and military service, or even into a commercial or manufacturing career, have been the field of much discussion and experimentation between the advocates of the old and the new studies. In 1833, M. Guizot aimed to relieve the pressure on these schools by instituting the Superior grade of Primary Schools, corresponding to our English High Schools.

In 1847, the Minister of Public Instruction (M. de Salvandy), divided the courses of the lycées, and other secondary schools, into three branches; to the classical and scientific studies he added a third branch, under a name till then quite new in the language of the University of France, namely, *special instruction*, reserved for pupils who were destined for commerce or manufactures. The studies embraced three years, and were divided as follows:

First year. Mathematics; natural philosophy and chemistry; physical geography; linear and ornamental drawing; Latin; history and geography; modern languages.

Second year. Mathematics; natural philosophy and chemistry; geometrical mechanics; natural history; Latin; French literature; history and geography; drawing; modern languages.

Third year. Mathematics; descriptive geography; natural philosophy and chemistry; machines; natural history; drawing; French rhetoric, comprising exercises in translation, analysis and composition in French; modern languages; practical lessons in accounts, commercial law, and agriculture.

In a circular addressed to the rectors, the minister remarked: "He wished the instruction solid, in order to render it efficacious. The object is not to offer a sort of asylum to children who have neither aptitude nor willingness for classical studies, but to develop faculties which the pure simple study of the ancient languages would leave inactive, and which need other aliment. The university does not intend to make a distinct, or an inferior college, within a normal one, but to organize for different characters and careers, two systems of lessons, which will lend each other mutual support. Both have an aim equally serious, equally elevated." On this plan special instruction was organized in several colleges, and in general with happy results.

In 1852, the minister (M. Fortoul), devised a new plan of studies, of which the following are the principal features: According to their age and the degree of their knowledge, the pupils of the lyceums were to be divided into three divisions, the elementary, grammar, and superior.

The exercises of the elementary division comprised: reading and recitation, writing, orthography, French grammar, the first principles of Latin grammar, geography, sacred history, explanation of the *epitome historiæ sacræ*, the rudiments of arithmetic, and linear, pencil, and pen drawing.

After an examination on the elementary course, the pupils passed into the grammar division, which embraced the three years of the sixth, fifth, and fourth classes. Each of these years was devoted, under the direction of the same professor: (1,) to the grammatical study of the French, Latin, and Greek languages; (2,) to the study of the geography and history of France, and arithmetic. Before leaving the fourth class, the pupils underwent a special examination (*examen de grammaire*), the result of which, if successful, was stated in a special certificate, which was indispensable to admittance into the superior division.

The superior division consisted of two sections, one literary, the other scientific. The instruction of the former gave access to the faculties of letters and law. That of the second prepared for the commercial and industrial professions, for the special schools of government, and the faculties of the sciences and medicine. Each pupil entered one or the other section, according to his preparation, and the career to which he was destined, and this was called the system of *Bifurcation*, which was discontinued by minister (M. Duruy), September, 1868.

By the law of June 21, 1865, Secondary Special Instruction was instituted to comprise moral and religious studies, the French language and literature, history and geography, applied mathematics, physics, mechanics, chemistry, natural history and their applications to agriculture and manufactures, linear drawing, commercial forms, and book-keeping. It may include, also, one or more modern foreign languages, common principles of legislation, industrial and rural economy and hygiene, ornamental and geometrical drawing, vocal music, and gymnastics.

The programmes of this new instruction were prepared with the greatest minuteness, by the minister (M. Duruy), after consultation with the most experienced and thoughtful educators. They were accompanied by precise indications of the method suited to each study. The entire course lasts four years. The subjects are so grouped and divided, that at the end of each year the pupil finds himself possessed of valuable knowledge, answering, in some degree, to the many careers of practical life, and enabling him to enter, with special preparation, the one which he has chosen. These programmes are not inflexible and absolute, but can be developed and restricted, according to the needs of the localities. In the agricultural departments, greater prominence can and should be given to the portions which bear upon that pursuit, and in the manufacturing districts the scientific principles, suited to the industry of those cities, should receive most attention.

SUBJECTS AND METHODS OF SECONDARY SPECIAL INSTRUCTION.

PRIMARY INSTRUCTION in France embraces moral and religious instruction, reading, writing, the elements of the French language, the four fundamental rules of arithmetic, and system of weights and measures. Some schools add to these elements a little geography, sacred history, and the measurement of the simplest plane figures, but these schools are in very small number, and the supplementary instruction which they impart is taken in by a few select pupils only. A child would, therefore, run the risk of not being able to follow with profit the new course of instruction, if, on leaving the primary school, he were at once to enter the first year's course in the special school. It will, therefore, be proper to institute, wherever there is such a school, a preparatory section, in which, in addition to having the instruction received in the primary school more firmly impressed on the mind, the children shall study one modern language, a little geometry, and linear drawing, which is in reality the practical carrying out of the course of geometry. During this year, the pupils, whithersoever they may come, who will form the preparatory section, will be fused into a homogeneous whole, because they will acquire knowledge almost uniform, and good scholars will be secured to the first normal course of special instruction.

PREPARATORY SECTION.

SUBJECTS OF INSTRUCTION.

French dictation and reading	6	hours weekly.
Modern languages	4	"
History of France, (simple narratives)	1	"
Geography: tracing of the map of the Department, and summary study of France	1	"
Mathematics: exercises in calculation and commencement of plane geometry	4	"
Natural history, (preliminary notions)	2	"
Caligraphy	4	"
Drawing	4	"
Gymnastics	2	"
Singing	2	"
Total	30	

FRENCH LANGUAGE.

Dictation and Reading.—The instruction in French grammar should be limited to repeating the paradigms, the declinations, and the conjugations. As to the syntax, that is to say the synthetical laws which rule the language, the master should merely point out the practical rules each time an opportunity occurs, avoiding all abstract formulas, which children have great difficulty in retaining, which they understand imperfectly, and which they forget speedily.

At the age of twelve or thirteen the child has already mastered, by use, the *natural* grammar of the rules of which he is ignorant, though, without knowing it, he daily applies the most important of them. In order to enable him to make enlightened practical use of the language, it will be sufficient to draw out, as it were, this natural grammar, and to engrave insensibly and without effort on the mind of the pupil, principles and rules, which he will more readily retain, because he has in a manner found them for himself, and understood them by himself.

The principal exercises will be dictations and reading. Select passages from history, ethics, mythology, natural history, should be dictated to the pupils, and explained by the master, with reference to the meaning of the contents and of the words. These passages should be short, simple, and consisting of ideas clearly defined and circumscribed within the limits of one or two lines. Immediately after the dictation the pupils should exchange their copy-books, and after having reciprocally corrected them, they should deliver them to the master, who should return them the next day, after having noted in the margin the errors committed by the pupil who has written the copy, as well as by the one who has corrected it.

The dictations should occupy the first part of the lesson, the second part should be devoted to reading, which is an important study, inasmuch as only that which is well understood can be well read; it is besides very useful in the ordinary course of life to be able to read aloud intelligently, distinctly, and with taste. Besides, in special instruction the reading of a French passage is to hold the same place, and is to be of the same service, as the expounding of a Latin or Greek passage in the classical schools.

The professor should himself read out aloud a well-chosen extract, should explain it so as to make the pupils well understand the ideas of the author and their sequence; should point out the most important passages, and the most striking expressions, and should deduct from them the principles of orthography, and some grammatical rules. At the conclusion the pupils should be made sometimes to read the same passages, sometimes to repeat from memory the principal thoughts contained in them, as also of the commentaries on them made by the master.

he task to be prepared for the next lesson should be the reproduction in writing, and always from memory, of the passages that have been read and explained, to which the pupils must endeavor to add, unaided, the thoughts to which the extract would naturally give rise. The length of this task should be in proportion to the amount of time at disposal, in order that it may be, not only an exercise in composition, but also in orthography and in caligraphy.

MODERN LANGUAGES.

The study of languages ought to commence early, because the memory of children retains words with great facility. The method to be followed is the *maternal* method, which is practiced with so much success in Germany, and in Switzerland, and which is being introduced in the lycées; little or no grammar, except perhaps the paradigms, but a great deal of oral practice; after this, sentences dictated by the master, and written on a blackboard by a pupil, who should at the same time translate them; further on, anecdotes should be learnt by heart, and repeated aloud, a few passages should be read aloud by one pupil, and immediately translated into French by his fellow-pupils; subjects should be given in French, and be treated in the language which is being learnt; finally, when the pupils are sufficiently advanced, they should converse in that language with the master, being strictly forbidden to use one word of French.

During the very first lessons the pupils may become possessed of elements sufficient to form short sentences. With the two articles, the two verbs "to be" and "to have," some nouns and adjectives, the number of which would increase with each lesson, the *practice* of the foreign language may commence.

The professor ought never to forget that he may also extend the knowledge of the children, and contribute to develop their faculties by the selection of thoughts and facts which he may combine with the study of a language. From the very commencement he ought to introduce into conversation (which is to be the usual form of his lessons) details borrowed from history, commerce, geography, industry, sciences, natural history, etc. The study of a language becomes thus not only a study of words, but a study of things; and the words penetrate into the mind of the pupil with the facts calculated to awaken his interest, and to furnish an incitement to his curiosity. The memory is not alone called into play, as would be the case by the abstract study of grammar, which is not suited to children, whose intelligence ought to be stimulated by a first sight of things belonging to the outward world, and whose nascent powers of thought ought to be fortified by concrete notions, the causes of which they will afterwards seek for with eager curiosity.

HISTORY OF FRANCE.

Simple Narratives.—Everybody knows how fond children are of listening to narratives, to the accounts of hunting or traveling adventures, of storms and battles. They wish them to be repeated; they follow the story with inexhaustible interest, and if the narrator forgets the smallest incident, they at once call him back to the accuracy of the first narration. Availing himself of this natural curiosity to develop at one and the same time the moral and the intellectual capacities of his pupils, a skillful teacher well knows how, by means of the study of history, to exercise a most salutary influence on their intellect and their heart, at an age when the agitating events of life have not yet disturbed the calm transparency of the soul. But, if this double result is to be obtained, the study must be made interesting, pleasant, animated, and consequently the system of textual rehearsals must be abandoned. A course of history for children of the age referred to, is not to be a critical course. *It should consist of isolated facts and detached biographies, which the master should narrate with simplicity*, but with art, taking care to give great prominence to the noble qualities of the celebrated characters, and to leave in the shade their faults and their vices. He should not fear to enter into minute details, for these interest children; but he should dwell on the grand traits that will strike their imaginations, and leave a deep impression; finally, he should wind up with some good thoughts, which will by degrees form in the hearts of the pupils a fund, as it were, of practical morality.

In order to accustom the pupils to connect their thoughts, and to speak fluently, the master should, during the lesson, make them repeat his narrative aloud; in order to accustom them to express themselves in writing, he should request them to write a short abstract of the narrative, in which they ought not to omit the observations to which it has given rise. This abstract should, as has already been mentioned, serve at one and the same time as a writing copy, and as an exercise in spelling.

GEOGRAPHY.

Tracing of the map of the department, and summary of the Geography of France.—Instead of beginning with definitions and general considerations of the form of the earth, and the divisions of the globe, the pupils should in this, as in the grammar lesson, proceed from the known to the unknown, from the simple to the complex; should start from their village in order to arrive at a knowledge of the entire globe, studying first the geography of the *canton*, the *arrondissement*, the department, then of the whole of France, and then of the surrounding countries.

The teacher, setting aside all scientific data, should endeavor to make his pupils understand how a geographical map is really constructed, and what is its use. For this purpose he should trace upon the blackboard the largest streets in the village, or the town in which the school is situated, and should mark with a dot the relative positions of the principal buildings. Then, representing the town itself by a dot, he should place in their respective positions the surrounding villages, beginning with those best known, and going on successively, till the limits of the canton be reached. He should indicate by lines the different roads leading to them, the rivers that run past them, and should fill up his outlines by introducing the most important or remarkable buildings, or the physical features of the country, such as woods or forests, hills or mountains.

Next, the canton should be represented by a dot, as the village was in the first instance, and around this dot should be traced the outlines and features of the *arrondissement*. The same method should be applied, but with fewer details, to the department, and then to the neighboring departments, and finally to the whole of France, which should then be studied in its *ensemble*. The principle traits of its general configuration; boundaries and mountains, rivers and watercourses, great cities and celebrated places, should be marked on the blackboard, or shown on a wall map, which the pupils should be exercised in reducing.

To these graphic studies the master should add practice in finding the points of the horizon, which is indispensable for understanding a map thoroughly. He should teach the pupils to find the points by the sun, by the polar star, or the compass; should point out that on maps and charts, the north is generally represented at the top, the east on the right hand side, the west on the left, the south at the bottom, &c. To such purely graphical exercises the course of geography in the preparatory division should be limited.

MATHEMATICS.

The instruction herein consists during the preparatory year far more in practical exercises than in theoretical lessons; all the pupils execute simultaneously on the slate with which they are furnished, the calculations and graphic operations indicated by the master.

Practical Arithmetic.—The four operations by whole and decimal numbers; numerous exercises in mental calculation; application of calculations to the solution of ordinary questions. As tasks, some problems.

Plane Geometry.—1. *The straight line.*—Drawing a straight line on paper; means of verifying whether a rule is quite straight; use of the metre. Drawing a straight line of a certain length; means used by carpenters for drawing straight lines on beams which they have squared; drawing a straight line on land (*sur le terrain*); how gardeners, trenchers, masons, &c., draw straight lines; proceedings employed in making plans and surveys; the surveyor's chain, &c., &c.

2. *The Circumference of the Circle.*—Drawing the circumference, use of the compass, examples of circles, wagon-wheels, millstones, &c., examples of semicircles, the arcades of many buildings, two circumferences of equal radius

or equal diameter are alike, &c., division of the circumference into degrees, example, the dial of watches, &c.

3. *Angles.*—Use of the protractor, its verification, relation of two angles, angles opposed at the summit, &c.; to make two equal angles, application to drawings, to the plans of architects, &c.

4. *Perpendiculars and Obliques.*—Drawing of perpendiculars with the simple square, the T, and the compass, to raise a perpendicular on the middle of a plane, carpenter's and stone-cutter's square, joiner's and designer's square, their verification, each point of a perpendicular in the middle of a plane is at an equal distance from the two extremities of the plane, &c., oblique lines (*obliques*), at equal distances from the foot of the perpendicular, drawing equal obliqe angles (*obliques égales*), unequal oblique angles, verification of the perpendicularity of a straight line by means of equal oblique angles, &c.

5. *Parallels.*—Drawing parallels with the help of rule, square, and compass, two straight lines perpendicular to a third are parallels, to draw through a given point a parallel to a given straight line, &c, the instrument for measuring tenons, its use, and its verification, equality of alternate internal angles and alternate external angles.

6. *Proportionality of Straight Lines* (*des droites*).—To divide a given straight line into a certain number of equal parts. Construction of the scale of a plan, a fourth proportionate to three straight lines, the compass of proportion, its use, proportional mean, &c.

Before commencing the explanation of theorems, the master should make the pupils understand the truth which he is about to establish, by quoting numerous examples from industry or the arts, and by the side of each proposition he should always place the most useful applications which have been made of it.

NATURAL HISTORY.

Preliminary notions. It is from nature that industry and art draw their means of action; natural history addresses itself to all minds, as to all ages, and to nearly every profession, a taste for it should, therefore, be given to children at an early age.

This science may be taught in various ways, but it should never be forgotten that in the special school the object is not to form consummate anatomists, learned geologists, or botanists and zoölogists acquainted with the entire nomenclature and all the problems of physiology, but men who, meaning to devote themselves to the intelligent culture of practical affairs, and the industrial arts, have a great interest in learning to observe correctly, and to fix their attention seriously on the processes of nature.

In order to develop the powers of observation of the children, the master should induce them to avail themselves of their walks to collect insects, plants, shells, and other like objects. He should devote two or three of the class hours each month to the examination and classification of these little collections, and should add a few explanatory remarks within the comprehension of the pupils. He should insist on the logical use of certain characteristics for determining the objects, and thus gradually and practically familiarize the children with the use of the natural methods; finally, he should endeavor to habituate them to reason correctly according to the facts which they have well studied, and always to submit their reasoning to the test of experience.

Zoölogy.—In the classes of the preparatory year the professor of zoölogy should choose for subjects of his conversations the natural history of animals which the pupils have constantly under their eyes, such as the horse, the dog, the cat, the mole, &c. He should at first merely touch upon isolated facts calculated to rouse youthful curiosity, and to give the pupils the habit of accounting sensibly for that which they observe; then he should proceed to a comparative examination of two or more animals which are like each other in some things, but which differ from each other on other points. He should explain, while indicating the relative importance of each point of resemblance and of dissemblance, how one may, by means of classification, summarize the knowledge one has acquired, and group the individual facts, so as to relieve the memory to put order into one's ideas, and to rise gradually to correct generalizations.

Thus with the study of the horse its character and the services which it renders to man should be combined; details as to the habits of wild horses, and as to the means of taming them, as also comparative remarks on the horse, the ass, and the zebra, in order to awaken the idea of families of animals, or genera. When the master has sketched the history of the dog, pointed out the acuteness of its sense of smell, its uncommon intelligence, and the effect of education on the development of its faculties, he should dwell on the qualities which the bull dog, the shepherd's dog, the spaniel, the terrier, the greyhound, and the poodle have in common, and whence it will be easy to draw an exact notion of the species. The cat should be compared with the tiger and the lion. The mole, the appearance and the habits of which should be described; the swallows and the charming history of their periodical migrations; the frogs and their metamorphoses; the cockchafer and its ravages; the silkworm and its useful cocoon; the bee and its honey; the inhabitants of the poultry-yard, the birds of passage, &c., will form most interesting subjects of conversation.

Botany.—The lessons in botany should be given in the same order, and in the same spirit. The professor should choose a few plants known to every one; he should induce the pupils to gather these for themselves, and during his lesson they should have constantly before their eyes either the plants or colored plates of them, giving the *ensemble* as well as the details. It seems natural first to fix the attention of young pupils on an active phenomenon, such as the germ, which is susceptible of being reproduced and examined in all its principle circumstances, in the bean, in corn, in Indian corn, the horse-chesnut, &c. The special history of certain plants, selected according to locality and season, and studied in their entirety and in their applications, will afford the master an opportunity of making known the general part played by the root, the stem, the flower, and the fruit, as also their essential modifications. He should commence with the study of plants bearing large flowers, such as almond, peach, apple, pear, and cherry-trees, the strawberry plant, the rose bush, the comparison of which will awaken in the mind of the pupil the idea of natural families of plants, peas, beans, and other common leguminous plants, colza, mustard, and a few other cruciferæ, the peony and poppy, mint, rosemary, thyme, sage, and some labiated plants, the potato and tobacco plant, the artichoke, nettle and daisy, beetroot, hemp, the lily, garlic, and the tulip, &c., and finally some common plants, the analysis of which is more difficult, such as wheat, oats, barley, Indian corn, all these may serve as tests for useful remarks relative to their structure, their duration, the uses they are put to, and the particulars regarding those parts of them which are made available by man. Among trees the oak, the walnut, the maple, the pine, the fir, &c., furnish equally interesting examples.

Geology.—The same method should be followed in *geology*. The examination of existing phenomena will help to make the pupil understand how many parts of the earth have been formed. Thus, after a violent shower of rain, the master may point out that the loose earth carried away by the currents form alluvion on the banks, or in the beds of rivulets, and rivers, and particularly at the mouths (deltas of the Rhone and of the Nile); that these deposits overlie each other and are constantly rising in height (stratification), and that animals which live in the water or have their habitations near the sea, must frequently be buried in the alluvion; hence the origin of fossils. The water spread over the earth is always undergoing evaporation, forms clouds, and falls again as rain or snow, which is imbibed by the soil. Formation of springs, of rivulets, rivers, &c. The rain-water dissolves certain substances which it encounters in the earth. Incrustations.—On high mountains the snow remains perpetually: glaciers; artesian wells, the water in these is tepid; thermal springs; central heat; volcanoes; metallic mines, &c.

CALIGRAPHY.

Commerce and industry demand, with right, a good handwriting of the persons they employ. In the schools for special instruction, the handwriting of the pupils will be the object of particular care; there will be four writing lessons in the week. As the art of symbolizing words by the use of conventional characters is a purely initiative art, in order to hasten the progress of the children, those whose writing is defective should be mixed with those who write better. During the first years the length of the tasks given should be limited, so that the master may exact a very careful execution, and so that every task should be an exercise in caligraphy.

Instead of giving as copies insignificant and disconnected phrases, a series of moral maxims should be composed, and expressed in a way easily retained in the memory, or very short fragments relating to industry, to history, or to the natural sciences. The pupils should collect these copies into books, which they will perhaps, at future periods, consult with pleasure.

DRAWING.

The pupils of the special schools should learn to handle the pencil as well as the pen. Only on this condition will they acquire that firmness of hand and correctness of eye which will be of so much importance to them in their future careers.

As among the pupils who frequent these schools there will be future foremen, to whom a knowledge of the use of the rule and compass is indispensable, the lessons in free-hand drawing should alternate with exercises in linear drawing.

These exercises should be made on the board with wooden instruments, foot-rule, square, &c. The subjects of study will only admit of two dimensions and should be chosen so as to enable them to be constructed with the help of a few, simple data. To join two straight lines, to develop a broken line; to trace perpendiculars and parallels with the compass; the division of straight lines; proportional lines; construction of a scale of proportion; division of arcs and angles, &c., horizontal and vertical lines; the diagonal of the square, octagons, starred polygons, &c., &c.

Free-hand drawing, which should occupy the greater part of the time, should comprise parallel straight lines, and curved lines parallel to each other, the division of lines into equal parts, measured by the eye only; the first outlines of the face, the veins in leaves, very simple architectural roses (*rosaces*), the stems of plants, some animals, &c., &c. A series of well graduated ornaments lithographed in *alto relievo*.

But it is not sufficient to train the eye to see correctly, and the hand to execute well, the taste for the beautiful which is to direct their future artistic creations, must also be instilled into the pupils. Care should therefore be taken that the lithographs, engravings, and plaster models, given to them to copy, should always be excellent of their kind, and of simple execution, and the forms should never be concealed under unnecessary shadings (*crayonnage*.) This choice of models is of the greatest importance.

GYMNASTICS.

• Gymnastics are to the body what study is to the mind. The intellect is fortified by exercise, and the body develops itself more normally if, at fixed hours, it be made to go through regular movements. Now the mind itself is the gainer if the body perform its functions regularly. Gymnastics are therefore a duty as well as a hygienic recreation. Every special college should have a gymnasium, and, as nothing connected with the important matter of education, whether mental or physical, should be left to chance, the programme of the lessons in gymnastics has been elaborated with the same care as that of the other branches of instruction. If, indeed, a certain amount of gymnastics is favorable to the development of nature, there is reason to fear that an excess of these exercises may injure this development, just as the mind is injured by excess of study. The pupils in the preparatory division should only be put through gentle and easy exercises, and these should be accompanied with singing. The rhythmic cadence which regulates these common movements, has even an effect on the moral nature of the children, and the efforts which they make to emit the tones in singing, exercise a progressive and salutary influence on the respiration, by causing a periodical expansion of the chest. Placing themselves in a row, with or without intervals; marching, with accompaniment of songs; rhythmical running, but never long enough to cause fatigue; movements of the arms and legs, accompanied by singing; series of exercises preparatory to swimming; principles of jumping on the spot, or leaps, preceded by a run; series of exercises with dumb-bells, of a weight proportionate to the age and strength of the children, &c., &c.

SINGING.

Singing is a powerful means of education. All the special colleges will therefore comprise singing-classes. Each lesson should commence with singing in unison, in order to steady the voice; the pupils should be grouped according to the capacity of their voices, and each group should, in its turn, go through the exercises prepared. The lesson should conclude with the practice of easy and melodious choruses. During the preparatory year there should be taught a few principles, and many tunes of a simple and agreeable character, set to good words, but very little musical grammar. As for the method to be employed, it must, provisionally, be the one that the master knows best how to apply.

FIRST YEAR.

SUBJECTS OF INSTRUCTION.

French—continuation	5	lessons weekly.
Modern languages	4	"
History—The great epochs of ancient Greek, Roman, and mediæval history	2	"
Geography—The five divisions of the globe. Detailed study of the geography of Europe	1	"
Mathematics—Arithmetic and plane geometry—continuation	5	"
Preliminary notions of physics and chemistry	2	"
Natural history, zoölogy (vertebrate, the principal mammals), botany, geology	1	"
Caligraphy	2	"
Drawing	4	"
Gymnastics	1	"
Singing	1	"
Total number of lessons	30	"

Written Test of Preparation.—The weakness of pupils admitted into a class reacts throughout all the ensuing year, and insensibly lowers the level of the studies. In consequence, every pupil who presents himself for admission to the first year's course, shall write a composition from which it may be judged whether he will be able to follow the lessons with advantage. The composition should bear upon the French language and upon arithmetic; the subjects should be given by the professors of the first year's course, whose opinion is mentioned in the *procès verbal* sent to the rector.

Recapitulary Lessons.—The professors should commence their course with a few recapitulary lessons. This return to the matters taught the preceding year is, it is true, more useful when the master follows his class, and every year advances one step forward with them. This system which, for diverse reasons, the university has abandoned, has, nevertheless, its advantages, for it enables the master to acquire a more thorough knowledge of the character, the nature, and the intellectual capacities of his pupils; it gives time for the development of sentiments of good will and affection, which render the task of instruction easier. Living during several years with their pupils, the masters become attached to them, take an interest in their progress and in their future prospects, as matters specially concerning themselves. The success of the pupil becomes thus a matter of honor to the master. This old system which has been preserved, and with some success, in the Polytechnic School, and also in classical schools which are not connected with the University, might, to a certain extent, be adopted in the special schools.

FRENCH.

French (continuation).—The lessons given during the course of the preceding year should be continued according to the same method, and in the same spirit. The first part of the lesson should consist in dictation. The pupils should correct each other's copies, the master should examine the corrections, and the next day return the copies with his remarks upon them. The second part of the lesson should consist in reading, whence a few grammatical rules should be deducted, more especially such as will admit of the whole terminating with a practical maxim. The pieces selected for dictation, and for reading, should be longer and more difficult than those of the preceding year.

The task given should be repeating by heart the fragment read in the class.

MODERN LANGUAGES.

The same general direction should be followed as previously indicated for these languages.

The pupils of this class should each in turn write on the blackboard a translation of a sentence dictated in French.

The task should be to learn by heart a fragment to be recited during the next lesson.

HISTORY.

The great epochs in ancient Greek, Roman, and Mediæval History.—It is generally recognized that literary studies exercise a most powerful influence on the development of the mind and the heart; therefore in the combination of the divers parts of the programmes of the special schools, as a general rule almost equal parts have been assigned to literature and to science. Besides, the pupils of the special classes ought not to remain entirely ignorant of the important events that have marked the course of centuries, or to leave school without having heard of the great men who have influenced the destiny of empires. But, as such a plan embraces the entire world, the master should limit himself to a few short narratives calculated to make a strong and vivid impression on young minds, and to constitute a course of practical morality.

Thus after having devoted a few lessons to the recapitulation of sacred history, which has been carefully studied in the primary classes, the teacher should point out Egypt, and its most remarkable monuments; Assyria, with the far-famed names of Semiramis and Sardanapalus; the Persians under Cyrus and Darius; Greece, which in Lycurgus, Solon, Miltiades, Aristide, Themistocles, and Pericles, will furnish him with fine examples to cite. He should mention the battles of Leuctra and Mantinea, of Granica and Arbelles, and move on rapidly to Roman history, which he should sketch in broad outlines; the foundation of Rome, Cincinnatus, Fabricius, the Decii, &c., the Punic Wars, the Gracchi, Cicero, Cæsar, Augustus, Trajan, Marcus Aurelius, and Constantine. Then the barbarians, Attila, Genseric, and Clovis; finally, Justinian, Charlemagne, Godfrey de Bouillon, Saint Louis, the capture of Constantinople, &c.

The effect of this course will be to make known to the pupils of the specials schools, certain names and certain facts which are constantly recurring in books, in museums, in works of art, even in every-day conversation, and of which no one ought to be ignorant.

GEOGRAPHY.

The five divisions of the Globe; detailed study of the Map of Europe.—France having been studied the previous year, the general Map of Europe should now be traced on the blackboard, then successively the map of Asia, Africa, America, Australia, and lastly the map of the world, or the planisphere; but the only details given should be the great mountain chains, the most commonly-known rivers, and the capitals of the principal states.

After the pupils have acquired this general knowledge of the great continents and seas, the master should lead them back to a more detailed study of Europe, and particularly of the regions surrounding France, with which her relations are most frequent. He should continue to mark on the blackboard, or later on small maps, the great physical features, and then the principal cities dwelling on their industrial or commercial importance.

For their tasks the pupils should be given *dumb* maps, the names to be applied from memory, and maps to be copied. These copies should be true free-hand sketches, without any scientific pretensions, and not manuscript editions of engraved maps, to produce which would be to lose much time in carrying out a false notion.

MATHEMATICS.

Arithmetic.—Exposition, still elementary, but already in a certain degree based upon reasoning, of the four operations with whole and decimal numbers; study of fractions;—the metrical system; rule of three, rule of society, of interest, and of discount according to the method of reduction to unity; notions of relations and proportions. As tasks, numerous problems relating to common questions.

One part of the lesson should always be devoted to practice in mental calculation.

During this year also very difficult and delicate demonstrations should be avoided in these lessons, as also such synthetical and abstract definitions which ordinarily are merely retained by the memory.

So also in geometry, the teacher should admit as sufficient demonstrations by superposition, and should take evidence as his basis, whenever it is possible so to do. In a word, he should not forget that his pupils are of the age of fourteen or fifteen, and that they are destined for practical work.

Geometry.—To trace from a given point as a centre, a circle which shall intersect a straight line at a given point;—a circle which passes through three given points, &c.:—to divide an angle into two, four, &c., equal parts, &c.

The Inscribed Angle.—Measure of the inscribed angle;—every angle inscribed in a semicircle is a right angle;—to find a proportional mean of two given straight lines;—to raise a perpendicular on the extremity of a straight line which can not be prolonged, &c.

Tangents.—Every straight line perpendicular to the extremity of a diameter is tangent to the circumference;—a tangent common to two circles;—bisector of the angle of two tangents:—application to the operations of the turner, &c.

Circles being tangents to straight lines.—Concentric Circumferences.—Circles which intersect each other, or which touch each other.—Describe a circumference which passes through two given points, and is tangent to a drawn straight line, &c. The line of the centres of two circumferences which intersect each other is perpendicular to the common chord in its middle, &c. To draw cog-wheels which catch either into other cogged wheels, or into pinions, or into trundles, &c.

Of the Triangle.—The sum of the three angles of a triangle is equal to two right-angles, &c.

Of similar Triangles.—Two triangles are similar when the angles of one are equal to the angles of the other, &c.

Of Quadrilaterals.—The sum of the angles of a quadrilateral are equal to four right-angles, &c.;—of the symmetrical trapezium;—curved roofs, tenons, mortises, &c., are symmetrical trapeziums; of the lozenge and its properties; of the right-angle and the square; the facets of dice, the points of a backgammon board, &c.

Of Polygons.—*Of regular* polygons. To inscribe and circumscribe regular polygons on a circumference; to divide a given circumference into equal parts, &c.

Of Starred Polygons (polygones étoilés).—To deduct a regular, starred polygon from a regular ordinary polygon, &c.; equality of polygons; equality by symmetry; division of polygons.

Similarity of Polygons.—To draw a polygon similar to another. Making plans on the circumferentor (*Lever des plans sur la planchette.*) Application to the drawing of architectural roses, gothic crosses, &c.

Measurements.—Measurement of lines and surfaces. Surveying and leveling.

The figures of which mention has been made in this course, all of which are much applied in arts and manufactures, should be drawn with rule and compass during the lessons in linear drawing.

It will be understood that, unless in exceptional cases, the professor of mathematics will not be able to take all his pupils into the country to carry out those practices in surveying which complete the course; but every Thursday, when the weather admits of it, some hours should be employed in practical operations in the grounds.

PHYSICS AND CHEMISTRY.

Preliminary Notions.—To awaken the curiosity of children, and to call forth in them the taste for observation, it will be sufficient that the professor should point out to them nature in full activity around them, and should fix their attention on the physical and chemical phenomena of which they are every day unconscious witnesses. He may also, without going beyond his subject, explain to them the use of the instruments and apparatus most commonly employed, and may fill his lessons with interesting experiments.

Physics.—The first part of the year should be devoted to imparting to the pupils general notions of the most important properties of matter, such as weight, density, pressure, compressibility, and electricity; but he should take for his starting point phenomena known to the pupils, and should make them help to discover the explanations. Following up this rule, he should speak to them of dilatation, of fusion, of ebullition, and of conductibility; he should demonstrate by experiment the principle of Archimedes; he should explain the use of the barometer, of the pneumatic machine, and of the thermometer, and should conclude with the elementary phenomena of electrical statics. In conformity with the rules which are to guide these lessons, he should take care to derive the principle of Archimedes, of the barometer, &c., not from the properties of matter, looked at from an abstract point of view, but from the problems proposed to Archimedes by King Hieron, Galileo by the guardians of the fountains in Florence, &c.

Chemistry.—Instead of commencing this preparatory course with the nomenclature, and an explanation of the diverse systems of crystallization, of definite and multiple proportions, &c., &c., the master should dwell on the number of chemical notions which the children have acquired from practical life, without being aware of it; he should endeavor to render these more precise, and teach the children to draw from them the most direct consequences, and he should point out to the pupils, by means of simple, inexpensive experiments, easy to reproduce, that there are bodies that are homogeneous, and others that are composite; that metals are indecomposable bodies, and that certain non-metallic bodies are in the same case; that chemists distinguish between acids, bases, alkalis, and salts; that heat liquefies and volatilizes; that there are fluids which are liquid, and others that are viscous; that there are two kinds of dissolution —one that does not alter, and one that does alter bodies; that there are substances which are soluble, and others that are insoluble; finally, that to unite two bodies is to make a synthesis, and to separate two bodies is to make an analysis.

The instruction given this year should include neither measure nor number, but should be limited to simple ideas, which the master should endeavor to make comprehensible by means of lucid and well executed experiments.

NATURAL HISTORY.

The minds of the young people having been prepared by a more attentive observation of all that surrounds them, and their curiosity having been awakened by what they heard in the lessons of the preceding year, the professor should now commence a regular course of natural history, still keeping in mind that though his lessons are to be a little more scientific, he should not allow them to lose the character of interesting conversations. He should consequently endeavor to render science accessible, by concealing those of its features which might seem too abstract, while, at the same time, taking care that the details given should not suffer in accuracy; and he should fix the facts taught in the memory of the pupils by constantly referring to the phenomena observed in daily life, and which bear on the needs of domestic economy; finally, he should accustom the children to put order and method into their observations and their studies.

During the winter, the pupils should be occupied with zoölogy (*vertebrata, principal mammals*). After having imparted some general notions of the principal organs of an animal, such as the stomach, the intestines, the liver, the lungs, heart, &c., the master should fix the rules of classification: species, genera, families, orders, classes. Then a summary study should be made of the internal framework of the vertebrate animals. The principal differences should be pointed out which exist between animals having an internal skeleton: vertebrata covered with hair or fur, which are all mammals; vertebrata covered with feathers, which constitute birds; vertebrata with scaly skins, which are nearly all reptiles, amphibiæ, or fish. The groups of the most useful and the most interesting mammals should be dwelt upon, such as the quadrimana, carnivora, ruminants, and the principal aquatic mammals. A recapitulation of the natural classification of mammalia should then be gone through.

The demonstrations should be made as much as possible with the aid of stuffed animals, or of artificial parts of animals; or when this is not possible, with the aid of colored pictures of large dimensions.

The course should terminate with the history of man, and of the various human races.

In botany the professor should make known the external character and the principal organs of plants, the structure and the functions of the parts through which they derive their nutriment, and which cause their growth—root, stem, leaves. He should make a careful study of the parts that serve for reproduction—flower, fruit, seed. When examining the variations which each organ of the plant exhibits in accordance with its species, and with the diverse processes of culture, the professor should point out the uses to which those vegetable products are put which are employed in human industry. Roots, bulbs, and edible onions; textile fibres derived from herbaceous stalks; woods, leaves serving for food and forage; flowers, fruits. The enumeration of all these affords an opportunity of instilling, by observation of common objects, all the most useful notions relative to the anatomy of plants, the composition of their tissues, and the laws which determine the relative disposition of their diverse organs, or of the parts of these.

In the course of geology, the particular tract of land in which the school is situated should be studied. The pupils should learn to distinguish the formations that surround them, to recognize the order of superposition and the differences of stratification in the different beds, the nature of the fossils found in them, and the deductions which may be drawn from these. Finally, during the excursions to which the study of this branch gives rise, the pupils should be practiced in collecting for themselves minerals of well defined character, in taking notes, and in making sketches of the arrangement of the rocks and the beds which they examine. Such personal observations enable them, in the following years, to understand by means of specimens, or of drawings, that which may be told them about countries and geological districts which they may not have an opportunity of examining directly.

COMMERCIAL ACCOUNTS.

Practical Exercises.—Explain that commerce is but a succession of exchanges: first merchandise for merchandise, in the beginning of societies, subsequently merchandise for money; peace and prosperity engender credit; sales to be paid in a given term; the accounts of each person then consists of what he owes, and of what is owing to him; meaning of the words debtor and creditor; active and passive; necessity of taking note of the sums to be received, and of the payments to be effected; what is understood by debiting and crediting; balance of accounts; balance to the debit, &c.

Synoptical table of the principal operations of commerce, buying and selling, forwarding merchandise, paying and receiving, to subscribe, to take, to negotiate, &c.

An invoice, what it is, what is understood by the sum total; sale at so much per cent., remission of so much per cent., brutto weight, net weight, tare, show models of current accounts, of bills of exchange, and drafts to order; explain the meaning of the word drawer, drawee, indorsement, indorser, due date, mean date of payment.

The object of this elementary course is to teach the pupils to make some of the calculations which occur in commerce, and to write invoices, accounts of sales, bills of invoice, &c., in a word, to make them acquainted with all those details which constitute bookkeeping, properly so called. The professor should satisfy himself by numerous questionings, that all his explanations have been well understood; he should make the pupils practice a great deal by simulating simple operations, copying models of invoices, of drafts to order, of cheques, &c., he should also exact that the calculations and the writing should be executed very neatly and elegantly, and in consequence, that before any model is copied, all the results should be verified.

CALIGRAPHY AND DRAWING.

Continuation of the principles and practice, English handwriting, running-hand.

In the classes for linear drawing the notions of lines and surfaces, imparted in the course of the preceding year, should be recapitulated. Ordinary curves and conical curves should be drawn on the blackboard and explained. The exercises on paper should consist of mosaics, iron railings, balustrades, &c. Dull gray tints and black tints spread over the drawings should continue to be practiced, as the preparation for the coloring of solid bodies.

The imitative drawing should comprise architectural ornaments, and the human face. When the pupils are to copy an ornament or a face, a model in relief, of the same size as the drawing they have to execute, should be placed in the room, in order that they may constantly carry their eyes from the board to the model, and from the model to the board, so as clearly to understand what they are about. The models of graphic exercises on paper are inclosed in frames under glass, placed in front of each pupil so as to oblige the latter to draw them without taking any measurements on the model, and merely in accordance with the dimensions indicated in the text relating to each drawing.

This branch of instruction is one of those in which the greatest latitude is left to the teacher, as the lessons ought to be given with reference to the particular industry of the province. The programmes of the course of drawing, and the choice of models, are therefore left to the decision of the members of the Council of Improvement, who alone can have a sound judgment on the matter.

GYMNASTICS.

Rhythmic movements, a little more sustained than the first series, and accompanied from time to time by a short and easy song, alternate movements with arms and legs accompanied by singing, jumping preceded by a run, jumping from a height not exceeding one metre thirty centimetres, exercises with dumb-bells on horizontal ladders or on oscillating lathes (*perches oscillantes*), &c.

SINGING.

Each lesson should open with exercises in solfaing. The master should sing out short musical phrases which the pupils should endeavor to reproduce. These phrases should never go beyond the extent of an octave. Towards the middle of the lesson the singing should be suspended for some minutes, during which the principles should be explained.

The musical tone, scale of tones, degrees, intervals, gamut, octave, means of representing tones by signs, notes, compass, the C clef, intonation, duration, time, simple time, $\frac{2}{4}$, $\frac{3}{4}$, 4, breve, semibreve, minim, equivalent rests.

The lesson should conclude with a song sung in unison, and two-part choruses.

EXAMINATION PRELIMINARY TO ADVANCEMENT.

At the end of the first school year the pupils are subjected to an examination in all the subjects included in the courses which they have just finished, in order to prove that they are competent to take part in and profit by, those which are about to commence. The judgment of the examining professors, together with the reasons on which it is founded, is entered in minutes signed by them, and transmitted to the rector. The pupils are placed according to merit.

In making out this list the work of the whole year is taken into account; the list of the places held by each pupil during each week are consequently taken into consideration, and a triple value is even attributed to the number representing the places held during the year taken altogether, in comparison with that attached to the standing taken during the examination at the end of the course.

Those pupils who do not answer satisfactorily during the examination, are allowed to subject themselves to a new examination at the recommencement of the classes, but if they fail a second time they must, in their own interest as well as in that of the studies, recommence the course of the preceding year.

At the end of each year devoted to special instruction. similar examinations and similar classification of the pupils shall take place.

SECOND YEAR.

SUBJECTS OF INSTRUCTION.

French—first principles of style and composition	4	hours weekly.
Modern languages	4	"
History of France, and leading facts in modern history up to 1789	4	"
Geography of France, agricultural, industrial, commercial, and administrative	4	"
Mathematics—commercial arithmetic, conclusion of geometry	5	"
Physics—general properties, liquids, heat, electricity	2	"
Chemistry—Metalloids and alkaline metals	2	"
Natural history—zoölogy (birds, reptiles, fishes, insects), geology	2	"
Accounts—exercises preparatory to bookkeeping	1	"
Caligraphy	1	"
Drawing	5	"
Gymnastics	1	"
Singing	1	"
Total number of lessons	32	"

FRENCH.

First principles of Style and Composition.—However simple a subject may be, there will always be a certain art in combining the various parts of which it is composed, so as to make it tell, and this art is useful to all, to the public orator or functionary, as well as to the simplest artisan. A common business letter ought to be clear, methodical, and accurate; in order to impart these three qualities to it, the writer must think over his subject, must place the different parts in suitable order, and must choose the expressions which most accurately convey his meaning. A regular course of rhetoric would, therefore, not be out of place towards the end of the complete programme of the special schools, but the age of the pupils will not allow of the dry rules of the syllogism and the forms under which it is disguised being explained to them, nor of the various figures of speech being described to them, which besides, nature herself teaches even to those men who are the least practiced in the art of speaking. In the lessons to be given in style, the method indicated for teaching the grammatical rules should be followed; that is to say, the pupils should be made to read a great deal, and during these readings the principal rules of style and composition should be incidentally deducted, and during the greater part of the year the task imposed should be to reproduce the test which has been read and commented upon during the lesson. In this manner the pupils will be supplied with a fund of ideas necessary for speaking and for writing, and which they can not as yet be expected to have acquired for themselves, because such a fund is the result of experience, of observation, of memory, and of reflection.

The professor should explain, by means of numerous short examples, the qualities which every sentence in general should possess, lucidity, precision, and correctness. He should point out summarily the various kinds of style,

STUDIES AND CONDUCT.

We shall devote most of this Number to a series of articles on Studies and Conduct—in continuation of similar articles begun several years since, with a view of issuing the whole in a volume to be entitled Student Life, with the following

PREFACE.

The Letters, Essays, and Thoughts, embraced in this Volume, on the aims and methods of education, the relative value of sciences, and the right ordering of life, were actually addressed by men eminent in literature and affairs, to young persons in whose well-being and well-doing they were deeply interested. They were first issued in the chapter or article form in which they here appear, in successive numbers of the American Journal of Education, to give variety, and the personal application of principles, to the more elaborate expositions of national systems and institutions to which that periodical was devoted. Although these chapters do not cover the whole field of youthful culture, or all the aids, motives, and dangers of a scholarly and public career, and include a few sheaves only from the golden harvest of recent American didactic and pedagogical literature, they constitute a convenient and valuable manual of Student Life. The light which they shed, like that which Virtue cast on the diverging paths of Hercules, neither leads to bewilder or dazzles to blind, and the advice which they drop is kindred to that which Wisdom of old uttereth in the street, APPLES OF GOLD—THE WORDS OF THE WISE.

HENRY BARNARD,
Editor of American Journal of Education.

HARTFORD, *Conn.*, 1872.

Note to Special Edition.

The Contents of the Volume on Studies and Conduct as announced, end with page 416. The pages which follow in this edition, devoted to selections from recent English publications on the relative value of classical and scientific studies in a liberal education, belong properly to the *Second Series* of Papers in English Pedagogy—*Education, the School and the Teacher in English Literature.*

STUDIES AND CONDUCT.—Letters, Essays, and Thoughts on the Principles of Education, the Relative Value of Studies, and the Conduct of Life, by Men Eminent in Literature and Affairs. Republished from Barnard's American Journal of Education. 416 pages. $2.50.

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STUDIES AND CONDUCT.

SUGGESTIONS BY MEN EMINENT IN LETTERS AND AFFAIRS.

SIR THOMAS WYATT TO HIS SON.

INASMUCH as now you are come to some years of understanding, and that you gather within yourself some fame of honesty, I thought that I should not lose my labour wholly, if now I did something advertise you to take the sure foundations and stablished opinions that leadeth to honesty.

And here, I call not honesty that men commonly call honesty, as reputation for riches, for authority, or some like thing; but that honesty, that I dare well say your grandfather had rather left to me than all the lands he did leave me,—that was, wisdom, gentleness, soberness, desire to do good, friendship to get the love of many, and truth above all the rest. A great part to have all these things, is to desire to have them. And although glory and honest name are not the very ends wherefore these things are to be followed, yet surely they must needs follow them, as light followeth the fire, though it were kindled for warmth. Out of these things the chiefest and infallible ground is the dread and reverence of God, whereupon shall ensue the eschewing of the contraries of these said virtues; that is to say, ignorance, unkindness, rashness, desire of harm, unquiet enmity, hatred, many and crafty falsehoods, the very root of all shame and dishonesty. I say, the only dread and reverence of God, that seeth all things, is the defence of the creeping in of all these mischiefs into you. And for my part, although I do well say there is no man that would wish his son better than I; yet, on my faith, I had rather have you lifeless, than subject to these vices. Think and imagine always that you are in presence of some honest men that you know; as Sir John Russell, your father-in-law, your uncle Parson, or some other such; and ye shall, if at any time ye find a pleasure in naughty touches, remember what shame it were before these men to do naughtily. And sure this imagination shall cause you to remember that the pleasure of a naughty deed is soon past, and the rebuke, shame, and the note thereof shall remain ever. Then, if these things ye take for vain imaginations, yet remember that it is certain, and no imagination, that ye are always in the presence and sight of God; and though you see Him not, so much is the reverence the more to be had, for that He seeth, and is not seen.

Men punish with shame as greatest punishment on earth—yea, greater than death; but His punishment is, first, the withdrawing of His favour and grace, and, in leaving His hand to rule the stern, to let the ship run without guide to its own destruction; and suffereth so the man that He forsaketh to run headlong, as subject to all mishaps, and at last, with shameful end, to everlasting shame and death. You may see continual examples both of one sort and of the other; and the better, if ye mark them well that yourself are come of; and consider well your good grandfather, what things there were in him, and his end. And they that knew him, noted him thus: first and chiefly, to have a great reverence of God, and good opinion of godly things. Next, that there was no man more pitiful; no man more true of his word; no man faster to his friends; no man diligenter or more circumspect, which thing, both the kings his masters noted in him greatly. And if these things, and especially the grace of God, that the fear of God always kept with him, had not been, the chances of this troublesome world that he was in had long ago overwhelmed him. This preserved him in prison from the hands of the tyrant,* that could find in his heart to see him racked; from two years' or more imprisonment in Scotland, in irons and stocks; from the danger of sudden changes and commotions divers, till that well-beloved of many, hated of none, in his fair age and good reputation, godly and christianly he went to Him that loved him, for that he always had Him in reverence. And of myself, I must be a near example unto you of my folly and nothingness, that hath, as I well observed, brought me into a thousand dangers and hazards, enmities, hatreds, prisonments, despites, and indignations; but that God hath of His goodness chastised me, and not cast me clean out of His favour; which thing I can impute to nothing but the goodness of my good father, that, I dare well say, purchased with continual request of God His grace towards me, more than I regarded or considered myself; and a little part to the small fear I had of God in the most of my rage, and the little delight that I had in mischief. You, therefore, if ye be sure and have God in your sleeve to call you to His grace at last, venture hardly by mine example upon naughty unthriftiness in trust of His goodness; and, besides the shame, I dare lay ten to one ye shall perish in the adventure; for trust me that my wish or desire of God for you shall not stand you in as much effect as I think my father's did for me. We are not all accepted of Him. Begin, therefore, betimes. Make God and goodness your foundations. Make your examples of wise and honest men; shoot at that mark; be no mocker —mocks follow them that delight therein. He shall be sure of shame that feeleth no grief in other men's shames. Have your friends in a reverence, and think unkindness to be the greatest offence, and least punished among men; but so much the more to be dreaded, for God is justiser upon that alone. Love well and agree with your wife; for where is noise and debate in the house, there is unquiet dwelling; and much more when it is in one bed. Frame well yourself to love and rule well and honestly your wife as your fellow, and she shall love and reverence you as her head. Such as you are to her, such shall she be unto you. Obey and reverence your father-in-law, as you would me; and remember that long life followeth them that reverence their fathers and elders; and the blessing of God, for good agreement between the wife and husband, is fruit of many children.

---

* Richard the Third.

Read oft this my letter, and it shall be as though I had often written to you; and think that I have herein printed a fatherly affection to you. If I may see that I have not lost my pain, mine shall be the contentation, and yours the profit; and, upon condition that you follow my advertisement, I send you God's blessing and mine, and as well to come to honesty as to increase of years.

SIR HENRY SIDNEY TO HIS SON, PHILIP SIDNEY.*

I have received two letters from you, one written in Latin, the other in French, which I take in good part, and will you to exercise that practice of learning often; for that will stand you in most stead in that profession of life that you are born to live in. And since this is my first letter that ever I did write to you, I will not that it be all empty of some advices, which my natural care for you provoketh me to wish you to follow, as documents to you in this your tender age.

Let your first action be the lifting up of your mind to Almighty God, by hearty prayer; and feelingly digest the words you speak in prayer, with continual meditation, and thinking of Him to whom you pray, and of the matter for which you pray. And use this as an ordinary act, and at an ordinary hour; whereby the time itself will put you in remembrance to do that which you are accustomed to do. In that time apply your study to such hours as your discreet master doth assign you, earnestly; and the time (I know) he will so limit, as shall be both sufficient for your learning, and safe for your health. And mark the sense and matter of all that you read, as well as the words. So shall you both enrich your tongue with words, and your wit with matter; and judgment will grow as years groweth in you. Be humble and obedient to your master; for unless you frame yourself to obey others, yea, and feel in yourself what obedience is, you shall never be able to teach others how to obey you. Be courteous of gesture, and affable to all men, with diversity of reverence, according to the dignity of the person. There is nothing that winneth so much, with so little cost. Use moderate diet, so as, after your meat, you may find your wit fresher, and not duller, and your body more lively, and not more heavy. Seldom drink wine, and yet sometimes do, lest being enforced to drink upon the sudden, you should find yourself inflamed. Use exercise of body, but such as is without peril of your joints or bones. It will increase your force, and enlarge your breath. Delight to be cleanly as well in all parts of your body as in your garments. It shall make you grateful in each company; and, otherwise, loathsome. Give yourself to be merry; for you degenerate from your father, if you find not yourself most able in will and body to do any thing when you be most merry; but let your mirth be ever void of all scurrility, and biting words to any man; for a wound given by a word is oftentimes harder to be cured, than that which is given with the sword. Be you rather a hearer and bearer away of other men's talk, than a beginner or procurer of speech; otherwise you shall be counted to delight to hear yourself speak. If you hear a wise sentence or an apt phrase, commit it to your memory, with respect of the circumstance when you shall speak it. Let never oath be heard to come out of your mouth, nor words of ribaldry; detest it in others, so shall custom make to yourself a law against it in yourself. Be modest in each assembly; and rather be rebuked of light fellows for a maiden-like shamefacedness, than of your sad friends for pert boldness. Think upon every word before you utter it; and remember how nature hath rampired up (as it were) the tongue with teeth, lips, yea, and hair without the lips, and all betokening reins, or bridles, for the loose use of that member. Above all things, tell no untruth—no, not in trifles. The custom of it is naughty; and let it not satisfy you, that for a time the hearers take it for a truth; for after it will be known as it is, to your shame;

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* Sir Philip Sidney, to whom this letter was addressed, was then twelve years of age, at school at Shrewsbury.

for there can not be a greater reproach to a gentleman than to be accounted a liar. Study and endeavour yourself to be virtuously occupied. So shall you make such an habit of well-doing in you, that you shall not know how to do evil, though you would. Remember, my son, the noble blood you are descended of, by your mother's side; and think, that only by virtuous life and good action you may be an ornament to that illustrious family; and otherwise, through vice and sloth, you shall be counted *labes generis*, one of the greatest curses that can happen to man. Well, my little Philip, this is enough for me, and too much, I fear, for you. But if I shall find that this light meal of digestion nourish any thing the weak stomach of your young capacity, I will, as I find the same grow stronger, feed it with tougher food. Your loving father, so long as you live in the fear of God.

SIR THOMAS BODLEIGH TO FRANCIS BACON.

My Good Cousin,—According to your request in your letter (dated the 19th of Oct. at Orleans) I received here the 18th of Dec., I have sent you by your merchant 30*l.* sterling, for your present supply; and had sent you a greater sum, but that my extraordinary charge this year hath utterly unfurnished me. And now, cousin, though I will be no severe exacter of accounts, either of your money or of time, yet, for the love I bear you, I am very desirous both to satisfy myself and your friends, how you prosper in your travels, and how you find yourself bettered thereby, either in knowledge of God or of the world; the rather, because the days you have already spent abroad are now both sufficient to give you light how to fix yourself and end with counsel, and accordingly to shape your course constantly upon it. Besides, it is a vulgar scandal to travellers, that few return more religious than they went forth; wherein both my hope and request is to you, that your principal care be to hold your foundation, and to make no other use of informing yourself in the corruptions and superstitions of other nations, than only thereby to engage your own heart more firmly to the truth. You live, indeed, in a country of two several professions; and you shall return a novice, if you be not able to give an account of the ordinances, strength, and progress of each, in reputation and party, and how both are supported, balanced, and managed by the state, as being the contrary humours in the temper of predominacy, whereof the health or disease of that body doth consist. These things you will observe, not only as an Englishman, whom it may concern to know what interest his country may expect in the consciences of their neighbours;

but also as a Christian, to consider both the beauties and blemishes, the hopes and dangers, of the Church in all places. Now for the world, I know it too well to persuade you to dive into the practices thereof; rather stand upon your own guard against all that attempts you thereunto, or may practise upon you in your conscience, reputation, or your purse. Resolve no man is wise or safe but he that is honest; and let this persuasion turn your studies and observations from the compliment and impostures of the debased age, to more real grounds of wisdom, gathered out of the story of times past, and out of the government of the present state. Your guide to this is, the knowledge of the country and the people among whom you live; for the country, though you can not see all places, yet if, as you pass along, you inquire carefully, and further help youself with books that are written of the cosmography of those parts, you shall sufficiently gather the strength, riches, traffic, havens, shipping, commodities, vent, and the wants and disadvantages of all places. Wherein, also, for your own good hereafter, and for your friends, it will be fit to note their buildings, furnitures, their entertainments; all their husbandry, and ingenious inventions in whatsoever concerneth either pleasure or profit.

For the people, your traffic among them, while you learn their language, will sufficiently instruct you in their habilities, dispositions, and humours, if you a little enlarge the privacy of your own nature, to seek acquaintance with the best sort of strangers, and restrain your affections and participation for your own countrymen of whatsoever condition. In the story of France, you have a large and pleasant field in three lines of their kings,—to observe their alliances and successions, their conquests, their wars, especially with us; their councils, their treaties; and all rules and examples of experience and wisdom, which may be lights and remembrances to you hereafter, to judge of all occurrents both at home and abroad.

Lastly, for the government: your end must not be, like an intelligencer, to spend all your time in fishing after the present news, humours, graces, or disgraces of court, which happily may change before you come home; but your better and more constant ground will be, to know the consanguinities, alliances, and estates of their princes; the proportion between the nobility and magistracy; the constitutions of their courts of justice; the state of their laws, as well for the making as the execution thereof; how the sovereignty of the king infuseth itself into all acts and ordinances; how many ways they lay impositions and taxations, and gather revenues to the crown; what be the liberties and servitudes of all degrees; what discipline and preparation for wars; what inventions for increase of traffic at home, for multiplying their commodities, encouraging arts, manufactures, or of worth in any kind; also what good establishment, to prevent the necessities and discontentment of people, to cut off suits at law, and duels, to suppress thieves, and all disorders.

To be short,—because my purpose is not to bring all your observations to heads, but only by these few to let you know what manner of return your friends expect from you,—let me, for all these and all the rest, give you this one note, which I desire you to observe as the counsel of a friend: not to spend your spirits, and the precious time of your travel, in a captious prejudice and censuring of all things, nor in an infectious collection of base vices and fashions of men and women, or general corruption of these times, which will be of use only among humorists, for jests and table-talk; but rather strain your wits and industry soundly to instruct yourself in all things between heaven and earth which may tend to virtue, wisdom, and honour, and which may make your life more profitable to your country, and yourself more comfortable to your friends, and acceptable to God. And, to conclude, let all these riches be treasured up, not only in your memory, where time may lessen your stock; but rather in good writings, and books of account, which will keep them safe for your use hereafter. And if in this time of your liberal traffic, you will give me an advertisement of your commodities in these kinds, I will make you as liberal a return from myself and your friends here as I shall be able. And so commending all your endeavours to Him that must either wither or prosper them, I very kindly bid you farewell.

LORD STRAFFORD TO HIS SON. (*Extracts.*)

My dearest Will,—Be careful to take the advice of those friends which are by me desired to advise you for your education. Serve God diligently morning and evening; and recommend yourself unto Him and have Him before your eyes in all your ways. Lose not the time of your quiet, but gather those seeds of virtue and knowledge which may be of use to yourself and comfort to your friends, for the rest of your life. Attend thereto with patience and refrain yourself from anger. Suffer not sorrow to cast you down, but with cheerfulness and good courage go on the race you are to run, in all sobriety and truth. In all your duties and devotions towards God, rather perform them joyfully than pensively, for God loves a cheerful giver. And God Almighty of His infinite goodness bless you and your children's children.—[*Written shortly before his execution.*]

SIR WILLIAM CECIL.—ADVICE TO HIS SON, ROBERT CECIL.

Sir William Cecil for forty years Secretary of State under Queen Elizabeth, and raised to the peerage by the title of Baron of Burleigh, in 1571, was born at Bourn, in Lincolnshire, September 13, 1520,—educated at the grammar school of Grantham and Stamford, at St. John's College, Cambridge, and at Gray's Inn, London,—was married to a sister of Sir John Cheke, in 1541, and on her death in 1543, to a daughter of Sir Anthony Cook in 1545, and was largely concerned in the public affairs of his country and age. He was a hard student in early life, a thoughtful reader of books, as well as observer of men, wise and moderate in his political measures, and never unmindful of his family and social duties in his anxious labors for the state. Much light is thrown on the domestic habits of Lord Burleigh, in the "Diary of a Domestic"—or "*The Complete Statesman*," as it is entitled by the writer, who describes himself as having "lived with him during the last twenty-five years of his life."

"His kindness, as nature ever leads all men, was most expressed to his children; if he could get his table set round with his young little children, he was then in his kingdom; and it was an exceeding pleasure to hear what sport he would make with them, and how aptly and merrily he would talk with them,—with such pretty questions and witty allurements, as much delighted himself, the children, and the hearers. * * He had his own children, grand children, and great grand children, ordinarily at his table, sitting about him like olive branches. * * He was of spare and temperate diet, * * and above all things, what business soever was in his head, it was never percieved at his table, where he would be so merry, as one would imagine he had nothing else to do; directing his speech to all men according to their qualities and capacities, so as he raised mirth out of all men's speeches, augmenting it with his own, whereby he was never in want of company, so long as he was able to keep company. * * His recreation was chiefly in his books, wherewith if he had time, he was more delighted than others with play at cards. * Books were so pleasing to him, as when he got liberty from the queen to go unto his country house to take air, if he found but a book worth the opening, he would rather lose his riding than his reading. And yet riding in his garden and walks, upon his little mule, was his greatest disport. But, so soon as he came in, he fell to his reading again, or else to dispatching of business. * * * His favorite book was Cicero's Offices. His kindness of nature was seen in his declaration that he entertained malice toward no individual, and thanked God that he never retired to rest out of charity with any man."

While appreciating the advantages of the best education, and striving to secure them at any price for his own children, Lord Burleigh deemed "human learning, without the fear of God, of great hurt to all youth." With the most profound reverence for "divine and moral documents," his "Advices to his son, Robert Cecil," are characterized by the shrewdest worldly wisdom.

Son Robert,

The virtuous inclinations of thy matchless mother,* by whose tender and godly care thy infancy was governed, together with thy education under so zealous and excellent a tutor, puts me in rather assurance than hope that thou art not ignorant of that *summum bonum* which is only able to make thee happy as well in thy death as in thy life; I mean the true knowledge and worship of thy Creator and Redeemer; without which all other things are vain and miserable. So that thy youth being guided by so sufficient a teacher, I make no doubt that he will furnish thy life with divine and moral documents. Yet, that I may not cast off the care beseeming a parent toward his child, or that thou shouldest have cause to derive thy whole felicity and welfare rather from others than from whence thou receivedst thy breath and being, I think it fit and agreeable to the affection I bare thee, to help thee with such rules and advertisements for the squaring of thy life as are rather gained by experience than by much reading. To the end that, entering into this exorbitant age, thou mayest be the better prepared to shun those scandalous courses whereunto the world, and the lack of experience, may easily draw thee, and because I will not confound thy memory, I have reduced them into ten precepts; and, next unto Moses' Tables, if thou imprint them in thy mind, thou shalt reap the benefit, and I the content. And they are these following:—

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* Lady Burleigh, was one of five daughters of Sir Anthony Cook, preceptor of Edward VI., all of whom were distinguished for their mental accomplishments, and for their exemplary demeanor as mothers of families. Her death, after sharing his fortunes for forty-three years, Lord Burleigh regarded as the great calamity of his life.

I. When it shall please God to bring thee to man's estate, use great providence and circumspection in choosing thy wife; for from thence will spring all thy future good or evil. And it is an action of thy life like unto a stratagem of war, wherein a man can err but once. If thy estate be good, match near home and at leisure; if weak, far off and quickly. Inquire diligently of her disposition, and how her parents have been inclined in their youth. Let her not be poor, how generous* soever; for a man can buy nothing in the market with gentility. Nor choose a base and uncomely creature altogether for wealth; for it will cause contempt in others and loathing in thee. Neither make a choice of a dwarf or a fool; for by the one thou shalt beget a race of pigmies; the other will be thy continual disgrace; and it will yirke† thee to hear her talk. For thou shalt find it to thy great grief, that there is nothing more fulsome‡ than a she-fool.

And touching the guiding of thy house, let thy hospitality be moderate, and, according to the means of thy estate, rather plentiful than sparing, but not costly; for I never knew any man grow poor by keeping an orderly table. But some consume themselves through secret vices, and their hospitality bears the blame. But banish swinish drunkards out of thine house, which is a vice impairing health, consuming much, and makes no show. I never heard praise ascribed to the drunkard but the well-bearing his drink, which is a better commendation for a brewer's horse or a drayman than for either a gentleman or a serving man. Beware thou spend not above three or four parts of thy revenues, nor above a third part of that in thy house; for the other two parts will do no more than defray thy extraordinaries, which always surmount the ordinary by much; otherwise thou shalt live, like a rich beggar, in continual want. And the needy man can never live happily nor contentedly; for every disaster makes him ready to mortgage or sell. And that gentleman who sells an acre of land sells an ounce of credit; for gentility is nothing else but ancient riches. So that, if the foundation shall at any time sink, the building must needs follow. So much for the first precept.

II. Bring thy children up in learning and obedience, yet without outward austerity. Praise them openly, reprehend them secretly. Give them good countenance, and convenient maintenance, according to thy ability; otherwise thy life will seem their bondage, and what portion thou shalt leave them at thy death they will thank death for it, and not thee. And I am persuaded that the foolish cockering§ of some parents, and the over-stern carriage of others, causeth more men and women to take ill courses than their own vicious inclinations. Marry thy daughters in time lest they marry themselves And suffer not thy sons to pass the Alps; for they shall learn nothing but pride, blasphemy, and atheism.‖ And if by travel they get a few broken languages, that shall profit them nothing more than to have one meat served in divers dishes. Neither, by my consent, shalt thou train them up in wars; for he that sets up his rest to live by that profession can hardly be an honest man or a good christian. Besides, it is a science no longer in request than use. For soldiers in peace are like chimneys in summer.

III. Live not in the country without corn and cattle about thee; for he that putteth his hand to the purse for every expense of household, is like him that keepeth water in a sieve. And what provision thou shalt want, learn to buy it at the best hand; for there is one penny saved in four betwixt buying in thy need and when the markets and seasons serve fittest for it. Be not served with kinsmen, or friends, or men intreated to stay; for they expect much, and do little; nor with such as are amorous, for their heads are intoxicated. And keep rather two too few, than one too many. Feed them well, and pay them with the most; and then thou mayest boldly require service at their hands.

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* Well-born. † Irk. ‡ Disgusting. § Over-indulgence.

‖ In this strong aversion to foreign travel, Ascham sympathized.

IV. Let thy kindred and allies be welcome to thy house and table. Grace them with thy countenance, and further them in all honest actions; for, by this means, thou shalt so double the band of nature, as thou shalt find them so many advocates to plead an apology for thee behind thy back. But shake off those glow-worms, I mean parasites and sycophants, who will feed and fawn upon thee in the summer of prosperity; but, in an adverse storm, they will shelter thee no more than an arbor in winter.

V. Beware of suretyship for thy best friends. He that payeth another man's debt seeketh his own decay. But if thou canst not otherwise choose, rather lend thy money thyself upon good bonds, although thou borrow it. So shalt thou secure thyself, and pleasure thy friend. Neither borrow money of a neighbor or a friend, but of a stranger; where paying for it, thou shalt hear no more of it. Otherwise thou shalt eclipse thy credit, lose thy freedom, and yet pay as dear as to another. But in borrowing of money be precious of thy word; for he that hath care of keeping days of payment is lord of another man's purse.

VI. Undertake no suit against a poor man with receiving[*] much wrong; for besides that thou makest him thy compeer, it is a base conquest to triumph where there is small resistance. Neither attempt law against any man before thou be fully resolved that thou hast right on thy side; and then spare not for either money or pains; for a cause or two so followed and obtained will free thee from suits a great part of thy life.

VII. Be sure to keep some great man thy friend, but trouble him not for trifles. Compliment him often with many, yet small gifts, and of little charge. And if thou hast cause to bestow any great gratuity, let it be something which may be daily in sight: otherwise, in this ambitious age, thou shalt remain like a hop without a pole, live in obscurity, and be made a foot-ball for every insulting companion to spurn at.

VIII. Toward thy superiors be humble, yet generous.[†] With thine equals familiar yet respective. Toward thine inferiors show much humanity, and some familiarity: as to bow the body, stretch forth the hand, and to uncover the head; with such like popular compliments. The first prepares thy way to advancement,—the second makes thee known for a man well bred,—the third gains a good report; which, once got, is easily kept. For right humanity takes such deep root in the minds of the multitude, as they are more easily gained by unprofitable curtesies than by churlish benefits. Yet I advise thee not to affect, or neglect, popularity too much. Seek not to be Essex: shun to be Raleigh.[§]

IX. Trust not any man with thy life, credit or estate. For it is mere folly for a man to enthral himself to his friend, as though, occasion being offered, he should not dare to become an enemy.

X. Be not scurrilous in conversation, nor satirical in thy jests. The one will make thee unwelcome to all company; the other pull on quarrels, and get the hatred of thy best friends. For suspicious jests, when any of them savor of truth, leave a bitterness of mind of those which are touched. And, albeit I have already pointed at this inclusively, yet I think it necessary to leave it to thee as a special caution; because I have seen many so prone to quip and gird,[‡] as they would rather lose their friend than their jest. And if perchance their boiling brain yield a quaint scoff, they will travel to be delivered of it as a woman with child. These nimble fancies are but the froth of wit."

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[*] Though you receive. [†] Not mean. [‡] Mock and jibe.

[§] Essex was the idol of the people; his rival, Raleigh, their aversion, till his undeserved misfortunes attracted their compassion, and his heroism their applause.

SIR MATTHEW HALE.

PLAN OF EDUCATION FOR HIS GRANDCHILDREN.

Written in 1673.

In a "*Letter of Advice to his Grandchildren*," written when he was "threescore and four years," and published after his death, Sir Matthew Hale—one of the most resplendent names in the annals of jurisprudence, for mental ability, general learning, purity of life, and impartiality as judge—gives the following plan for their education, in which he differs "upon great reason and observation" "from the ordinary method of tutors," not only in his day, but for two centuries afterwards in England:—

PLAN OF EDUCATION FOR BOYS BETWEEN THE AGES OF EIGHT AND TWENTY

As to you, my grandsons, you must know, that till you come to be about eighteen or twenty years old, you are but in preparation to a settled estate of life; as there is no certain conjecture to be made before that age what you will be fit for, so till that age you are under the hammer and the file, to fit, dispose, and prepare you for your future condition of life, if God be pleased to lend it you; and about that time it will probably appear, both what you will be fit for, and whether you are like to make a prosperous voyage in the world or not.

1. Until you come to eight years old, I expect no more of you than to be good English scholars, to read perfectly and distinctly any part of the Bible, or any other English book, and to carry yourselves respectfully and dutifully to those that are set over you.

2. About eight years old, you are to be put or sent to a grammar school, where I expect you should make a good progress in the Latin tongue, in oratory and poetry; but above all to be good proficients in the Latin tongue, that you may be able to read, understand and construe any Latin author, and to make true and handsome Latin; and though I would have you learn somewhat of Greek, yet the Latin tongue is that which I most value, because almost all learning is now under that language. And the time for your abode at the grammar school is till you are about sixteen years old.

3. After that age, I shall either remove you to some university, or to some tutor that may instruct you in university learning, thus to be educated till you are about twenty years old; and herein I shall alter the ordinary method of tutors, upon great reason and observation.

I therefore will have you employed from sixteen to seventeen in reading some Latin authors to keep your Latin tongue; but principally and chiefly in arithmetic and geometry, and geodesy or measuring of heights, distances, and superficies and solids, for this will habituate and enlarge your understanding, and will furnish you with a knowledge which will be both delightful and useful all the days of your life; and will give you a pleasant and innocent diversion and entertainment when you are weary and tired with any other business.

From seventeen years old till nineteen or twenty, you may principally intend logic, natural philosophy, and metaphysics, according to the ordinary discipline of the university; but after you have read some systems or late topical or philosophical tracts that may give you some taste of the nature of those sciences, I shall advise your tutor to exercise you in Aristotle, for there is more sound learning of this kind to be found in him, touching these sciences, than in a cart-load of modern authors; only tutors scarce take the pains to understand him themselves, much less to instruct their scholars and pupils in them, insomuch, that there are few that have read his books.

And under the title of philosophy, I do not only intend his eight books of physics, but his books de Natura et Generatione Animalium, his books de Incestu Animalium, de Anima, de Meteoriis, de Somno et Vigilia, de Morte, de Plantis, de Mundo, and his Mechanics, if you join thereunto Archimedes'.

These are part of real philosophy, and excellently handled by him, and have more of use and improvement of the mind than other notional speculations in logic or philosophy delivered by others; and the rather, because bare speculations and notions have little experience and external observation to confirm them, and they rarely fix the minds, especially of young men. But that part of philosophy that is real, may be improved and confirmed by daily observation; and is more stable, and yet more certain and delightful, and goes along with a man all his life, whatever employment or profession he undertakes.

4. When you come to above twenty years old, you are come to the critical age of your life; you are in that state of choice that the ancients tell us was offered to Hercules; on the left hand, a way of pleasure, of luxury, of idleness, intemperance, wantonness, which though it first be tempting and flattering, yet it ends in dishonor, in shame, in infamy, in poverty; such a way as the wise man spoke of, "There is a way that is pleasant and delightful, but the end of that way is death;" and that which the same wise man speaks of, (Eccles. xi. 9,) "Rejoice, O young man, in thy youth, and let thy heart cheer thee in the days of thy youth, and walk in the ways of thine heart. But know for all these things, God will bring thee into judgment." Again, on the right hand, there is a way of honesty and sobriety, of piety and the fear of God, of virtue and industry; and though this way may seem at first painful and rugged, yet it ends in peace and favor with God, and commonly in honor and reputation, in wealth and contentation even in this life. For although Almighty God hath reserved greater rewards for virtue and goodness than this life affords, yet he loves and delights to behold good and comely order among the children of men; and therefore a wise father will draw on his children to goodness, and learning, and obedience to him, with handsome rewards and encouragements, suitable to the age and disposition of his children. So the great Master and Father of the children of men, and of the great family of heaven and earth, doth commonly invite and draw men to ways of piety, virtue and goodness, by the encouragements of reputation, honor, esteem, wealth and other outward advantages, and thereby in great measure governs the children of men, and maintains that order that is necessary and convenient for the world of mankind.

And although this is neither the only nor chief reward of goodness and virtue yet till men are grown to that ripeness of understanding to look after rewards of a higher nature, namely, the happiness of the life to come, he is pleased most wisely to make use of these inferior encouragements and invitations, like so many little pulleys and cords, to draw men to the ways of virtue, piety and goodness, wherein, when they are once led and confirmed, they are established in higher and nobler expectations, namely, the love of God and the beauty of goodness and virtue. And on the right-hand way, there are not only propounded certain general virtues of sobriety, temperance and industry, but there are also certain particular walks of industry and virtue, and the exercise thereof in certain especial callings and employments, some more liberal and eminent, as divines, physicians, lawyers, &c. Some more laborious, yet generous enough, as husbandry, the primitive and most innocent employment, is such as becomes noblemen and gentlemen. Some of other kinds, as merchants and handicrafts. And to all these employments, justly and industriously followed, Almighty God hath annexed a blessing; for they conduce to the good of mankind, and the maintenance of human societies, and the convenient support of persons and families.

And when you come to about this age, unless you are corrupted by idleness, evil company or debauchery, your minds will begin to settle, and your inclinations will begin to bend themselves towards some of these employments, and to a steady course of life. And although it may please God to order things so that you may not be put upon the necessity to take any of these professions upon you for your subsistence, because I may leave you a competent provision otherways, yet assure yourselves a calling is so far from being a burthen or dishonor to any of you, that it will be a great advantage to you every way to be of some profession; and therefore I commend some of them to your choice, especially for such of you whose fortunes may not be so plentiful.

But if you should not fix to any of these more regular professions, as divinity, law, or physic, yet I would have you so far acquainted with them, as that you may be able to understand, and maintain, and hold fast, the religion in which you have by me been educated; and so much of the laws of the kingdom, as may instruct you how to defend the estate that shall be left you, and to order your lives conformable to those laws under which you live, and to give at least common advice to your neighbors in matters of ordinary or common concernment; and so much of physic, especially of anatomy, as may make you know your own frame, and maintain and preserve your health by good diet, and those ordinary helps, a good herbal or garden may afford.

And although you should not addict yourselves professedly to any of these three callings, yet I would have you all acquainted with husbandry, planting and ordering of a country farm, which is the most innocent, and yet most necessary employment, and such as becomes the best gentleman in England; for it is a miserable thing to see a man master of an estate in lands, and yet not know how to manage it, but must either be at the mercy of tenants or servants, or otherwise he knows not how to live, being utterly a stranger to husbandry; and therefore must be beholden to a tenant or a servant for his subsistence, who many times knowing their own advantage, by the ignorance, carelessness or idleness of a master or landlord, set the dice upon him, and use him as they please. I have always observed, a country gentleman that hath a competent estate of lands in his hands, and lives upon it, stocks it himself, and understands it, and manages it in his own hands, lives more plentifully, breeds up his children more handsomely, and in a way of industry, is better loved in his country, and doth more good in it, than he that hath twice the revenue and lives upon his rents, or it may be in the city, whereby both himself, and family, and children, learn a life of idleness and expense, and many times of debauchery. And therefore if you can not settle your minds to any other profession, yet I would have you be acquainted with the course of husbandry, and manage at least some considable part of your estate in your own hands. And this you may do without any disparagement, for the life of a husbandman is not unseemly for any of the children of Adam or Noah, who began it; and although that employment requires attendance and industry, as well as knowledge and experience, yet it will afford a man competent time for such other studies and employments as may become a scholar or a gentleman, a good patriot or justice in his country.

Though all callings and employments carry with them a gratefulness and contenting variety much more than idleness and intemperance, or debauchery, yet in whatsoever calling you are settled, though that calling must be your principal business, and such as you must principally apply yourselves unto, yet I thought it always necessary to have some innocent diversions for leisure times; because it takes off the tediousness of business, and prevents a worse misspending of the time. I therefore commend to those gentlemen, of what profession soever, that they spend their spare and leisure hours in reading of history or mathematics, in experimental philosophy, in searching out the kinds and natures of trees and plants, herbs, flowers, and other vegetables; nay, in observing of insects, in mathematical observations, in measuring land; nay, in the more cleanly exercise of smithery, watch-making, carpentry, joinery works of all sorts. These and the like innocent diversions give these advantages:—1. They improve a man's knowledge and understanding; 2. They render him fit for many employments of use; 3. They take off the tediousness of one employment; 4. They prevent diversions of worse kinds, as going to taverns, or games, and the like; 5. They rob no time from your constant calling, but only spend with usefulness and delight that time that can be well spared.

STUDIES AND CONDUCT.

SUGGESTIONS BY EMINENT DIVINES.

BISHOP HALL TO LORD DENNY ON THE ORDERING OF A DAY.[*]

Every day is a little life: and our whole life is but a day repeated; whence it is that old Jacob numbers his life by days; and Moses desires to be taught this point of holy arithmetic, to number not his years, but his days. Those, therefore, that dare lose a day, are dangerously prodigal; those that dare mis-spend it, desperate. We can best teach others by ourselves; let me tell your lordship, how I would pass my days, whether common or sacred, that you (or whosoever others, overhearing me), may either approve my thriftiness, or correct my errors: to whom is the account of my hours either more due, or more known. All days are His, who gave time a beginning and continuance; yet some he hath made ours, not to command, but to use.

In none may we forget Him; in some we must forget all, besides Him. First, therefore, I desire to awake at those hours, not when I will, but when I must; pleasure is not a fit rule for rest, but health; neither do I consult so much with the sun, as mine own necessity, whether of body or in that of the mind. If this vassal could well serve me waking, it should never sleep; but now it must be pleased, that it may be serviceable. Now when sleep is rather driven away than leaves me, I would ever awake with God; my first thoughts are for Him, who hath made the night for rest, and the day for travel; and as He gives, so blesses both. If my heart be early seasoned with His presence, it will savor of Him all day after. While my body is dressing, not with an effeminate curiosity, nor yet with rude neglect, my mind addresses itself to her ensuing task, bethinking what is to be done, and in what order, and marshaling (as it may) my hours with my work; that done, after some whiles meditation, I walk up to my masters and companions, my books, and, sitting down amongst them with the best contentment, I dare not reach forth my hand to salute any of them, till I have first looked up to heaven, and craved favor of him to whom all my studies are duly referred: without whom, I can neither profit nor labor. After this, out of no over great variety, I call forth those which may best fit my occasions, wherein I am not too scrupulous of age; sometimes I put myself to school to one of those ancients whom the Church hath honored with the name of Fathers; whose volumes I confess not to open without a secret reverence of their holiness and gravity; sometimes to those later doctors, which want nothing but age to make them classical; always to God's Book. That day is lost, whereof some hours are not improved in those divine monuments: others I turn over out of choice; these out of duty. Ere I can have sat unto weariness, my family, having now overcome all household distractions, invites me to our common devotions; not without some short preparation. These, heartily performed, send me up with a more strong and cheerful appetite to my former work, which I find made easy to me by intermission and variety; now, therefore, can I deceive the hours with change of pleasures, that is, of labors. One while mine eyes are busied, another while my hand, and sometimes my mind takes the burthen from them both; wherein I would imitate the skillfulest cooks, which make the best dishes with manifold mixtures; one hour is spent in textual divinity, another in controversy; histories relieve them both. Now, when the mind is weary of others' labors, it begins to undertake her own; sometimes, it meditates and winds up for future use; sometimes it lays forth her conceits into present discourse; sometimes for itself, after for others. Neither know I whether it works or plays in these thoughts; I am sure no sport hath more pleasure, no work more use; only the decay of a weak body makes me think these delights insensibly laborious. Thus could I all day (as ringers use) make myself music with changes, and complain sooner of the day for shortness than of the business for toil, were it not that this faint monitor interrupts me still in the midst of my busy pleasures, and enforces me both to respite and repast; I must yield to both; while my body and mind are joined together in these unequal couples, the better must follow the weaker. Before my meals, therefore, and after, I let myself loose from all thoughts, and now would forget that I ever studied; a full mind takes away the body's appetite no less than a full body makes a dull and unwieldy mind; company, discourse, recreations, are now seasonable and welcome: these prepare me for a diet, not gluttonous, but medicinal; the palate may not be pleased, but the stomach, nor that for its own sake; neither would I think any of these comforts worth respect in themselves but in their use, in their end, so far as they may enable me to better things. If I see any dish to tempt my palate, I fear a serpent in that apple, and would please myself in a willful denial; I rise capable of more, not desirous; not now immediately from my trencher to my book, but after some intermission. Moderate speed is a sure help to all proceedings; where those things which are prosecuted with violence of endeavor or desire, either succeed not, or continue not.

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[*] Joseph Hall, Bishop of Norwich, was born at Ashby-de-la-Zouch, in Leicestershire, July 1, 1574; was educated at Emmanuel College, Cambridge; in 1597 published a volume of Satires; was Dean of Worcester in 1617; Bishop of Exeter in 1627, and translated to Norwich in 1641. The revenues of his bishopric were sequestered in 1642, and he died in great poverty at Higham, in 1646.

After my later meal, my thoughts are slight; only my memory may be charged with her task, of recalling what was committed to her custody in the day; and my heart is busy in examining my hands and mouth, and all other senses, of that day's behavior. And now the evening is come, no tradesman doth more carefully take in his wares, clear his shopboard, and shut his window, than I would shut up my thoughts, and clear my mind. That student shall live miserably, which like a camel lies down under his burden. All this done, calling together my family, we end the day with God. Thus do we rather drive the time away before us, than follow it. I grant neither is my practice worthy to be exemplary, neither are our callings proportionable. The lives of a nobleman, of a courtier, of a scholar, of a citizen, of a countryman, differ no less than their dispositions; yet must all conspire in honest labor.

Sweet is the destiny of all trades, whether of the brows or of the mind. God never allowed any man to do nothing. How miserable is the condition of those men, which spend the time as if it were given them, and not lent; as if hours were waste creatures, and such as should never be accounted for; as if God would take this for a good bill of reckoning: *Item,* spent upon my pleasures forty years! These men shall once find that no blood can privilege idleness, and that nothing is more precious to God, than that which they desire to cast away—time. Such are my common days; but God's day calls for another respect. The same sun arises on this day and enlightens it; yet because that sun of Righteousness arose upon it, and gave a new life unto the world in it, and drew the strength of God's moral precept unto it, therefore, justly do we sing with the psalmist; This is the day which the Lord hath made. Now I forget the world and in a sort myself;

and deal with my wonted thoughts, as great men use, who, at sometimes of their privacy, forbid the access of all suitors. Prayer, meditation, reading, hearing, preaching, singing, good conference, are the businesses of this day, which I dare not bestow on any work, or pleasure, but heavenly.

I hate superstition on the one side, and looseness on the other; but I find it hard to offend in too much devotion, easy in profaneness. The whole week is sanctified by this day; and according to my care of this, is my blessing on the rest. I show your lordship what I would do, and what I ought; I commit my desires to the imitation of the weak, my actions to the censures of the wise and holy, my weaknesses to the pardon and redress of my merciful God.

LETTER TO MR. MILWARD ON THE PLEASURES OF STUDY AND CONTEMPLATION.

I can wonder at nothing more than how a man can be idle; but of all others, a scholar; in so many improvements of reason, in such sweetness of knowledge, in such varieties of studies, in such importunity of thoughts: other artisans do but practice, we still learn; others run still in the same gyre to weariness, to satiety; our choice is infinite; other labors require recreations; our very labor recreates our sports; we can never want either somewhat to do, or somewhat that we would do. How numberless are the volumes which men have written of arts, of tongues? How endless is that volume which God hath written of the world! wherein every creature is a letter; every day a new page. Who can be weary of either of these? To find wit in poetry; in philosophy, profoundness; in mathematics, acuteness; in history, wonder of events; in oratory, sweet eloquence; in divinity, supernatural light, and holy devotion; as so many rich metals in their proper mines; whom would it not ravish with delight? After all these, let us but open our eyes, we can not look beside a lesson, in this universal book of our Maker, worth our study, worth taking out. What creature hath not his miracle? what event doth not challenge his observation? And if, weary of foreign employment, we list to look home into ourselves, there we find a more private world of thoughts which set us on to work anew, more busily and not less profitably: now our silence is vocal, our solitariness popular; and we are shut up, to do good unto many; if once we be cloyed with our own company, the door of conference is open; here interchange of discourse (besides pleasure) benefits us; and he is a weak companion from whom we return not wiser. I could envy, if I could believe that anchoret, who, secluded from the world, and pent up in his voluntary prison walls, denied that he thought the day long, whiles yet he wanted learning to vary his thoughts. Not to be cloyed with the same conceit is difficult, above human strength; but to a man so furnished with all sorts of knowledge, that according to his dispositions he can change his studies, I should wonder that ever the sun should seem to pass slowly. How many busy tongues chase away good hours in pleasant chat, and complain of the haste of night! What ingenious mind can be sooner weary of talking with learned authors, the most harmless and sweetest companions? What a heaven lives a scholar in, that at once in one close room can daily converse with all the glorious martyrs and fathers? that can single out at pleasure, either sententious Tertullian, or grave Cyprian, or resolute Hierome, or flowing Chrysostome, or divine Ambrose, or devout Bernard, or (who alone is all these) heavenly Augustine, and talk with them and hear their wise and holy counsels, verdicts, resolutions; yea (to rise higher) with learned Paul, with all their fellow-prophets, apostles; yet more, like another Moses, with God himself, in them both? Let the world contemn us; while we have these delights we can not envy them; we can not wish ourselves other than we are. Besides, the way to all other contentments is troublesome; the only recompense is in the end. To delve in the mines, to scorch in the fire for the getting, for the fining of gold is a slavish toil; the comfort is in the wedge to the owner, not the laborers: where our very search of knowledge is delightsome. Study itself is our life; from which we would not be barred for a world. How much sweeter then is the fruit of study, the conscience of knowledge? In comparison whereof the soul that hath once tasted it, easily contemns all human comforts. Go now, ye worldlings, and insult over our paleness, our neediness, our neglect. Ye could not be so jocund if you were not ignorant; if you did not want knowledge, you could not overlook him that hath it; for me, I am so far from emulating you, that I profess I had as lieve be a brute beast, as an ignorant rich man. How is it then, that those gallants, which have privilege of blood and birth, and better education, do so scornfully turn off these most manly, reasonable, noble exercises of scholarship? a hawk becomes their fist better than a book; no dog but is a better company: any thing or nothing, rather than what we ought. O minds brutishly sensual! Do they think that God made them for disport, who even in his paradise would not allow pleasure without work? And if for business, either of body or mind: those of the body are commonly servile. like itself. The mind therefore, the mind only, that honorable and divine part, is fittest to be employed of those which would reach to the highest perfection of men, and would be more than the most. And what work is there of the mind but the trade of a scholar, study? Let me therefore fasten this problem on our school gates, and challenge all comers, in the defense of it; that no scholar can not but be truly noble. And if I make it not good, let me never be admitted further then to the subject of our question. Thus we do well to congratulate to ourselves our own happiness; if others will come to us, it shall be our comfort, but more theirs; if not, it is enough that we can joy in ourselves, and in Him in whom we are that we are.

ADVICE FOR MEN OF ALL DEGREES AND OCCUPATIONS.

Let us begin with him who is the first and last; inform yourself aright concerning God; without whom, in vain do we know all things; be acquainted with that Saviour of yours, which paid so much for you on earth, and now sues for you in heaven. Think all God's outward favors and provisions the best for you: your own ability and actions the meanest. Suffer not your mind to be either a drudge or a wanton; exercise it ever, but overlay it not: in all your businesses, look, through the world, at God: whatsoever is your level, let him be your scope; every day take a view of your last; and think either it is this or may be: offer not yourself either to honor or labor, let them both seek you; care you only to be worthy, and you can not hide you from God. So frame yourself to the time and company, that you may neither serve it nor sullenly neglect it; and yield so far as you may neither betray goodness nor countenance evil. Let your words be few and digested. There are but two things which a Christian is charged to buy, and not to sell, Time and Truth; both so precious that we must purchase them at any rate. So use your friends, as those which should be perpetual, may be changeable. While you are within yourself, there is no danger; but thoughts once uttered must stand to hazard. Do not hear from yourself what you would be loth to hear from others. In all good things, give the eye and ear the full scope, for they let into the mind; restrain the tongue, for it is a spender. Few men have repented them of silence. In all serious matters take counsel of days, and nights, and friends: and let leisure ripen your purposes; neither hope to gain aught by suddenness. The first thoughts may be confident, the second are wiser. Serve honesty ever, though without apparent wages; she will pay sure, if slow. As in apparel, so in actions, know not what is good, but what becomes you. Excuse not your own ill, aggravate not others: and if you love peace, avoid censures, comparisons, contradictions. Out of good men choose acquaintance; of acquaintance, friends; of friends, familiars; after probation admit them; and after admittance, change them not. Age commendeth friendship. Do not always your best; it is neither wise nor safe for a man ever to stand upon the top of his strength. If you would be above the expectation of others, be ever below yourself. Expend after your purse, not after your mind; take not where you may deny, except upon conscience of desert, or hope to requite. Either frequent suits or complaints are wearisome to a friend. Rather smother your griefs and wants as you may, than be either querulous or importunate. Let not your face belie your heart, nor always tell tales out of it; he is fit to live amongst friends or enemies that can ingenuously close. Give freely, sell thriftily; change seldom your place, never your state; either amend inconveniences or swallow them, rather than you should run from yourself to avoid them.

JEREMY TAYLOR, D.D.—1613-1667.[*]

THE MANLY ELEMENT IN CHILDREN'S TRAINING.

OTHERWISE do fathers, and otherwise do mothers handle their children. These soften them with kisses and imperfect noises, with the pap and breast-milk of soft endearments; they rescue them from tutors, and snatch them from discipline: they desire to keep them fat and warm, and their feet dry, and their bellies full; and then the children govern, and cry, and prove fools and troublesome, so long as the feminine republic does endure. But fathers, because they design to have their children wise and valiant, apt for counsel or for arms, send them to severe governments, and tie them to study, to hard labor, and afflictive contingencies. They rejoice when the bold boy strikes a lion with his hunting spear, and shrinks not when the beast comes to affright his early courage. Softness is for slaves and beasts, for minstrels and useless persons, for such who can not ascend higher than the state of a fair ox, or a servant entertained for vainer offices; but the man that designs his son for nobler employments,—to honors and to triumphs, to consular dignities, and presidencies of councils, loves to see him pale with study, or panting with labor, hardened with sufferings, or eminent by dangers. (*Holy Dying, ch. iii.*)

THE AGE OF REASON AND DISCRETION IN YOUTH.

We must not think that the life of a man begins when he can feed himself or walk alone, when he can fight or beget his like, for so he is contemporary with a camel or a cow; but he is first a man when he comes to a certain steady use of reason, according to his proportion; and when that is, all the world of men can not tell precisely. Some are called at age at fourteen, some at one-and-twenty, some never; but all men late enough; for the life of a man comes upon him slowly and insensibly. But as when the sun approaching towards the gates of the morning, he first opens a little eye of heaven, and sends away the spirits of darkness, and gives light to a cock, and calls up the lark to matins, and by and by gilds the fringes of a cloud, and peeps over the eastern hills, thrusting out his golden horns like those which decked the brows of Moses when he was forced to wear a veil because himself had seen the face of God; and still, while a man tells the story, the sun gets up higher, till he shows a fair face and a full light, and then he shines one whole day, under a cloud often, and sometimes weeping great and little showers, and sets quickly. So is a man's reason and his life. He first begins to perceive himself, to see or taste, making little reflections upon his actions of sense, and can discourse of flies and dogs, shells and play, horses and liberty: but when he is strong enough to inter into arts and little institutions, he is at first entertained with trifles and impertinent things, not because he needs them, but because his understanding is no bigger, and little images of things are laid before him, like a cock-boat to a whale, only to play withal: but before a man comes to be wise, he is half dead with gouts and consumption, with catarrhs and aches, with sore eyes and a worn-out body. So that, if we must not reckon the life of a man but by the accounts of his reason, he is long before his soul be dressed; and he is not to be called a man without a wise and an adorned soul, a soul at least furnished with what is necessary towards his well-being.

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[*] JEREMY TAYLOR was born in Cambridge in 1613—the son of a barber, who secured for him admission to Emmanuel College—was made fellow of All-Soul's College in Oxford in 1636; rector of Uppingham in 1642; Bishop of Down and Connor, and Vice-Chancellor of the University of Dublin in 1662; and died, August 13, 1667.

And now let us consider what that thing is which we call years of discretion. The young man is passed his tutors, and arrived at the bondage of a caitiff spirit; he is run from discipline, and is let loose to passion. The man by this time hath wit enough to choose his vice, to act his lust, to court his mistress, to talk confidently, and ignorantly, and perpetually: to despise his betters, to deny nothing to his appetite, to do things that when he is indeed a man he must for ever be ashamed of: for this is all the discretion that most men show in the first stage of their manhood. They can discern good from evil; and they prove their skill by leaving all that is good, and wallowing in the evils of folly and an unbridled appetite. And by this time the young man hath contracted vicious habits, and is a beast in manners, and therefore it will not be fitting to reckon the beginning of his life: he is a fool in his understanding, and that is a sad death, &c. (*Holy Dying, ch. i.*)

CONVERSATION.

The following is the Analysis of Bishop Taylor's sermon on "*The Good and Evil Tongue.*"

I. General Observations.

II. The vices of Conversation.

1. Talking too much.
    1. Talking foolishly.
    2. Scurrility.
    3. Revealing Secrets.
    4. Common swearing.
    5. Contentious wrangling.
2. Slander.
3. Flattery.

III. The virtues of Conversation.

1. Instruction.
2. Comfort.
3. Reproof.

THOMAS FULLER, D.D.—1608-1661.

MEMORY.

It is the treasure-house of the mind, wherein the monuments thereof are kept and preserved. Plato makes it the mother of the Muses. Aristotle sets it in one degree further, making experience the mother of arts, memory the parent of experience. Philosophers place it in the rear of the head; and it seems the mine of memory lies there, because there men naturally dig for it, scratching it when they are at a loss. This again is twofold; one, the simple retention of things; the other, a regaining them when forgotten.

Brute creatures equal if not exceed men in a bare retentive memory. Through how many labyrinths of woods, without other clue of thread than natural instinct, doth the hunted hare return to her meuse? How doth the little bee, flying into several meadows and gardens, sipping of many cups, yet never intoxicated, through an ocean (as I may say) of air, steadily steer herself home, without help of card or compass. But these can not play an aftergame, and recover what they have forgotten, which is done by the meditation of discourse.

Artificial memory is rather a trick than an art, and more for the gain of the teacher than profit of the learners. Like the tossing of a pike, which is no part of the postures and motions thereof, and is rather for ostentation than use, to show the strength and nimbleness of the arm, and is often used by wandering soldiers, as an introduction to beg. Understand it of the artificial rules which at this day are delivered by memory mountebanks; for sure an art thereof may be made (wherein as yet the world is defective) and that no more destructive to natural memory than spectacles are to eyes, which girls in Holland wear from twelve years of age. But till this be found out, let us observe these plain rules.

First, soundly infix in thy mind what thou desirest to remember. What wonder is it if agitation of business jog that out of thy head, which was there rather tacked than fastened? whereas those notions which get in by "violenta possessio," will abide there till "ejectio firma," sickness, or extreme age disposses them. It is best knocking in the nail over night, and clinching it the next morning.

Overburthen not thy memory to make so faithful a servant a slave. Remember, Atlas was weary. Have as much reason as a camel, to rise when thou hast thy full load. Memory, like a purse, if it be over full that it can not shut, all will drop out of it; take heed of a gluttonous curiosity to feed on many things, lest the greediness of the appetite of thy memory spoil the digestion thereof. Beza's case was peculiar and memorable; being above fourscore years of age, he perfectly could say by heart any Greek chapter in St. Paul's epistles, or any thing else which he had learnt long before, but forgot whatsoever was newly told him; his memory, like an inn, retaining old guests, but having no room to entertain new.

Spoil not thy memory by thine own jealousy, nor make it bad by suspecting it. How canst thou find that true which thou wilt not trust? St. Augustine tells us of his friend Simplicius, who being asked, could tell all Virgil's verses backward and forward, and yet the same party avowed to God, that he knew not that he could do it till they did try him. Sure there is concealed strength in men's memories, which they take no notice of.

Marshal thy notions into a handsome method. One will carry twice more weight trussed and packed up in bundles, than when it lies untoward flapping and hanging about his shoulders. Things orderly fardled up under heads are most portable.

Adventure not all thy learning in one bottom, but divide it betwixt thy memory and thy note-books. He that with Bias carries all his learning about him in his head, will utterly be beggared and bankrupt, if a violent disease, a merciless thief, should rob and strip him. I know some have a commonplace against commonplace books, and yet perchance will privately make use of what they publicly declaim against. A commonplace book contains many notions in garrison, whence the owner may draw out an army into the field on competent warning.

Moderate diet and good air preserve good memory; but what air is best I dare not define, when such great ones differ. Some say a pure and subtle air is best, another commends a thick and foggy air. For the Pisans sited in the fens and marshes of Arnus have excellent memories, as if the foggy air were a cap for their heads.

Thankfulness to God for it continues the memory; whereas some proud people have been visited with such oblivion, that they have forgotten their own names. Staupitius, tutor to Luther, and a godly man, in a vain ostentation of his memory, repeated Christ's genealogy by heart in his sermon, but being out about the captivity of Babylon, I see, saith he, God resisteth the proud, and so betook himself to his book.

Abuse not thy memory to be sin's register, nor make advantage thereof for wickedness. Excellently Augustine, "Quidam vero pessimi memoria sunt mirabili, qui tanto pejores sunt, quanto minus possunt, quæ male cogitant, oblivisci."

FOREIGN TRAVEL.

Travel not early before thy judgment be risen; lest thou observest rather shows than substance.

Get the language (in part) without which key thou shalt unlock little of moment.

Know most of the rooms of thy native country before thou goest over the threshold thereof.

To travel from the sun is uncomfortable. Yet the northern parts with much ice have some crystal.

If thou wilt see much in a little, travel the Low Countries. Holland is all Europe in an Amsterdam print.

Be wise in choosing objects, diligent in marking, careful in remembering of them. Yet herein men much follow their own humors. One asked a barber who never before had been at the court, what he saw there? "Oh," said he, "the king was excellently well trimmed!"

Labor to distil and unite into thyself the scattered perfections of several nations. Many weed foreign countries, bringing home Dutch drunkenness, Spanish pride, French wantonness, and Italian Atheism; as for the good herbs, Dutch industry, Spanish loyalty, French courtesy, and Italian frugality, these they leave behind them; others bring home just nothing; and, because they singled not themselves from their countrymen, though some years beyond sea, were never out of England.

SMALL BOOKS.

We shall generally find, that the most excellent books in any art or science, have been still the smallest and most compendious; and this not without ground; for it is an argument that the author was a master of what he wrote, and had a clear notion, and a full comprehension of the subject before him. For the reason of things lies in a little compass, if the mind could at any time be so happy as to light upon it: most of the writings and discourses in the world are but illustration and rhetoric, which signifies as much as nothing to a mind eager in pursuit after the causes and philosophical truth of things.

KNOWLEDGE OF GOOD AND EVIL.—HOW ATTAINED.

The natural inability of most men to judge exactly of things, makes it very difficult for them to discern the real good and evil of what comes before them, to consider and weigh circumstances, to scatter and look through the mists of error, and so separate appearances from reality. For the greater part of mankind is but slow and dull of apprehension; and therefore in many cases under a necessity of seeing with other men's eyes, and judging with other men's understandings. To which their want of judging or discerning abilities, we may add also their want of leisure and opportunity, to apply their minds to such a serious and intent consideration, as may let them into a full discovery of the true goodness and evil of things, which are qualities which seldom display themselves to the first view. There must be leisure and retirement, solitude and a sequestration of man's self from the noise and toil of the world; for truth scorns to be seen by eyes too much fixed upon inferior objects. It lies too deep to be fetched up with the plough, and too close to be beaten out with the hammer. It dwells not in shops or workhouses; nor till the late age was it ever known, that any one served seven years to a smith or a tailor, that he might at the end thereof, proceed master of any other arts, but such as those trades taught him: and much less that he should commence doctor or divine from the shopboard, or the anvil; or from whistling to a team, come to preach to a congregation. These were the peculiar, extraordinary privileges of the late blessed times of light and inspiration: otherwise nature will still hold on its old course, never doing any thing which is considerable without the assistance of its two great helps—art and industry. But above all, the knowledge of what is good and what is evil, what ought and what ought not to be done in the several offices and relations of life, is a thing too large to be compassed, and too hard to be mastered, without brains and study, parts, and contemplation.

Shakspeare, in Troilus and Cressida says:

——" Pleasure and revenge
Have ears more deaf than adders to the voice
Of any true decision."

Lord Bacon claims: " It is not a pure and primitive knowledge of nature, by the light whereof man did give names to other creatures in paradise, but the aspiring of overmuch knowledge of good and evil, with an intent to shake off God and to give law unto himself, which was the original temptation and sin." "The excellent books and discourses of antiquity are of little effect towards honesty of life and the reformation of corrupt manners, because they are read, not by men mature in years and judgment, but are left and confined only to boys and beginners."

ISAAC BARROW, D.D.—1630-1677.

WISDOM.

WISDOM of itself is delectable and satisfactory, as it implies a revelation of truth and a detection of error to us. 'Tis like light, pleasant to behold, casting a sprightly lustre, and diffusing a benign influence all about; presenting a goodly prospect of things to the eyes of our minds; displaying objects in their due shapes, postures, magnitudes, and colors; quickening our spirits with a comfortable warmth, and disposing our minds to a cheerful activity; dispelling the darkness of ignorance, scattering the mists of doubt, driving away the spectres of delusive fancy; mitigating the cold of sullen melancholy; discovering obstacles, securing progress, and making the passages of life clear, open, and pleasant. We are all naturally endowed with a strong appetite to know, to see, to pursue truth; and with a bashful abhorrency from being deceived and entangled in mistake. And as success in inquiry after truth affords matter of joy and triumph; so being conscious of error and miscarriage therein, is attended with shame and sorrow. These desires wisdom in the most perfect manner satisfies, not by entertaining us with dry, empty, fruitless theories upon mean and vulgar subjects; but by enriching our minds with excellent and useful knowledge, directed to the noblest objects, and serviceable to the highest ends.

Wisdom is exceedingly pleasant and peaceable; in general, by disposing us to acquire and to enjoy all the good delight and happiness we are capable of; and by freeing us from all the inconvenience, mischiefs, and infelicities our condition is subject to. For whatever good from clear understanding, deliberate advice, sagacious foresight, stable resolution, dexterous address, right intention, and orderly proceeding doth naturally result, wisdom confers: whatever evil blind ignorance, false presumption, unwary credulity, precipitate rashness, unsteady purpose, ill contrivance, backwardness, inability, unwieldiness and confusion of thought beget, wisdom prevents. From a thousand snares and treacherous allurements, from innumerable rocks and dangerous surprises, from exceedingly many needless incumbrances and vexatious toils of fruitless endeavors, she redeems and secures us.

Wisdom instructs us to examine, compare, and rightly to value the objects that court our affections and challenge our care! and thereby regulates our passions and moderates our endeavors, which begets a pleasant serenity and peaceable tranquillity of mind. For when being deluded with false shows, and relying upon ill-grounded presumptions, we highly esteem, passionately affect, and eagerly pursue things of little worth in themselves or concernment to us; as we unhandsomely prostitute our affections, and prodigally misspend our time, and vainly lose our labor, so the event not answering our expectation, our minds thereby are confounded, disturbed, and distempered. But, when guided by right reason, we conceive great esteem of, and zealously are enamored with, and vigorously strive to attain things of excellent worth and weighty consequence, the conscience of having well placed our affections and well employed our pains, and the experience of fruits corresponding to our hopes, ravishes our minds with unexpressible content. And so it is: present appearance and vulgar conceit ordinarily impose upon our fancies, disguising things with a deceitful varnish, and representing those that are vainest with the greatest advantage; whilst the noblest objects, being of a more subtle and spiritual nature, like fairest jewels inclosed in a homely box, avoid the notice of gross sense, and pass undiscerned by us. But the light of wisdom, as it unmasks specious imposture and bereaves it of its false colors, so it penetrates into the retirements of true excellency, and reveals its genuine lustre.

Wisdom makes all the troubles, griefs, and pains incident to life, whether casual adversities, or natural afflictions, easy and supportable, by rightly valuing the importance and moderating the influence of them. It suffers not busy fancy to alter the nature, amplify the degree, or extend the duration of them, by representing them more sad, heavy, and remediless than they truly are. It allows them no force beyond what naturally and necessarily they have, nor contributes nourishment to their increase. It keeps them at a due distance, not permitting them to encroach upon the soul, or to propagate their influence beyond their proper sphere.

Charity.

How like a paradise the world would be, flourishing in joy and rest, if men would cheerfully conspire in affection, and helpfully contribute to each other's content: and how like a savage wilderness now it is, when like wild beasts, they vex and persecute, worry and devour each other. How not only philosophy hath placed the supreme pitch of happiness in a calmness of mind, and tranquillity of life, void of care and trouble, of irregular passions and perturbations; but that holy scripture itself in that one term of peace most usually comprehends all joy and content, all felicity and prosperity: so that the heavenly consort of angels, when they agree most highly to bless, and to wish the greatest happiness to mankind, could not better express their sense, than by saying, "Be on earth peace, and good will among men."

Books.

He that loveth a book will never want a faithful friend, a wholesome counselor, a cheerful companion, an effectual comforter. By study, by reading, by thinking, one may innocently entertain himself, as in all matters, so in all fortunes.

ROBERT BURNS.

EPISTLE TO A YOUNG FRIEND.

I lang hae thought, my youthfu' friend,
  A something to have sent you,
Though it should serve nae other end
  Than just a kind *memento;*
But how the subject-theme may gang
  Let time and chance determine;
Perhaps it may turn out a sang,
  Perhaps turn out a sermon.

Ye'll try the world soon, my lad,
  And, *Andrew* dear, believe me,
Ye'll find mankind an unco squad,
  And muckle they may grieve ye.
For care and trouble set your thought,
  Ev'n when your end's attained;
And a' your views may come to nought,
  Where ev'ry nerve is strained.

I'll no say, men are villains a';
  The real, harden'd, wicked,
Who hae nae check but human law,
  Are to a few restricked:
But och! mankind are unco weak,
  An' little to be trusted;
If *self* the wavering balance shake
  It's rarely right adjusted!

Yet they wha fa' in fortune's strife,
  Their fate we should nae censure,
For still th' *important end* of life,
  They equally may answer;
A man may hae an honest heart,
  Tho' poortith hourly stare him;
A man may tak a neebor's part,
  Yet hae nae cash to spare him.

Ay free, aff han' your story tell,
  When wi' a bosom crony;
But still keep something to yoursel
  Ye scarcely tell to ony.
Conceal yoursel as weel's ye can
  Frae critical dissection;
But keek thro' ev'ry other man,
  Wi' sharpen'd, slee inspection.

The sacred lowe o' weel-plac'd love,
  Luxuriantly indulge it;
But never tempt th' *illicit rove,*
  Tho' naething should divulge it.
I wave the quantum o' the sin,
  The hazard of concealing;
But och! it hardens a' within,
  And petrifies the feeling!

To catch dame Fortune's golden smile,
  Assiduous wait upon her;
And gather gear by ev'ry wile
  That's justified by honour;
Not for to hide it in a hedge,
  Not for a train-attendant;
But for the glorious privilege
  Of being *independent.*

The fear o' hell's a hangman's whip,
  To haud the wretch in order;
But where ye feel your *honour* grip,
  Let that ay be your border;
Its slightest touches, instant pause—
  Debar a' side pretences;
And resolutely keep its laws
  Uncaring consequences.

The great *Creator* to revere,
  Must sure become the *creature;*
But still the preaching cant forbear,
  And ev'n the rigid feature:
Yet ne'er with wits profane to range,
  Be complaisance extended;
An Atheist's laugh's a poor exchange
  For Deity offended!

When ranting round in pleasure's ring,
  Religion may be blinded;
Or if she gie a *random sting*,
  It may be little minded;
But when on life we're tempest-driv'n,
  A conscience but a canker—
A correspondence fix'd wi' Heav'n,
  Is sure a noble *anchor!*

Adieu, dear, amiable youth!
  Your heart can ne'er be wanting:
May prudence, fortitude, and truth,
  Erect your brow undaunting!
In ploughman's phrase, "God send you speed,"
  Still daily to grow wiser:
And may you better reck the *rede*,
  Than ever did th' adviser!

A BARD'S EPITAPH.

Is there a man, whose judgment clear
Can others teach the course to steer,
Yet runs, himself, life's mad career,
    Wild as the wave;
Here pause—and thro' the starting tear,
    Survey this grave.

The poor inhabitant below
Was quick to learn, and wise to know,
And keenly felt the friendly glow,
    And softer flame,
And thoughtless follies laid him low,
    And stained his name.

Reader, attend—whether thy soul
Soars fancy's flights beyond the pole,
Or darkly grubs this earthly hole,
    In low pursuit,
Know, prudent, cautious, self-control
    Is wisdom's root.

O wad some pow'r the giftie gie us
To see oursels as others see us!
It wad frae monie a blunder free us
                And foolish notion.

PRODICUS—THE CHOICE OF HERCULES.

PRODICUS, the author of the allegory which Xenophon has preserved for the guidance of the young of all countries, in his *Memorabilia*, where Socrates, in his conversation with Aristippus, to enforce his arguments for temperance, piety and labor, cites the language addressed by Virtue to Hercules against the specious promises of Sensuality which lead to bewilder, and dazzle to blind—was a native of Iulis in the island of Ceos, and flourished about B. C. 456.

THE CHOICE OF HERCULES.

Hercules having attained to that stage of life when man being left to the government of himself, seldom fails to give certain indications whether he will walk in the paths of virtue or wander through all the intricacies of vice, perplexed and undetermined what course to pursue, retired into a place where silence and solitude might bestow on him that tranquillity and leisure so necessary for deliberation, when two women, of more than ordinary stature, came on towards him. The countenance of the one, open and amiable, and elevated with an air of conscious dignity. Her person was adorned with native elegance, her look with modesty, every gesture with decency, and her garments were altogether of the purest white. The other was comely, but bloated, as from too high living. Affecting softness and delicacy, every look, every action, was studied and constrained; while art contributed all its powers to give those charms to her complexion and shape which nature had denied her. Her look was bold, the blush of modesty she was a stranger to, and her dress was contrived, not to conceal, but display those beauties she supposed herself possessed of. She would look round to see if any observed her; and not only so, but she would frequently stand still to admire her own shadow. Drawing near to the place where the hero sat musing, eager and anxious for the advantage of first accosting him, she hastily ran forward; while the person who accompanied her moved on with her usual pace, composed and majestic. Joining him, she said. 'I know, my Hercules! you have long been deliberating on the course of life you should pursue; engage with me in friendship, and I will lead you through those paths which are smooth and flowery, where every delight shall court your enjoyment, and pain and sorrow shall not once appear. Absolved from all the fatigue of business and the hardships of war, your employment shall be to share in the social pleasures of the table, or repose on beds of down; no sense shall remain without its gratification; beauty shall delight the eye and melody the ear, and perfumes shall breathe their odors around you. Nor shall your care be once wanted for the procuring of these things: neither be afraid lest time should exhaust your stock of joys, and reduce you to the necessity of purchasing new, either by the labor of body or mind: it is to the toil of others that you alone shall owe them! Scruple not, therefore, to seize whatever seemeth most desirable; for this privilege I bestow on all who are my votaries.'

Hercules, having heard so flattering an invitation, demanded her name.—'My friends,' said she, 'call me Happiness; but they who do not love me endeavor to make me odious, and therefore brand me with the name of Sensuality.'

By this time the other person being arrived, thus addressed him in her turn: 'I also, O Hercules! am come to offer you my friendship, for I am no stranger to your high descent: neither was I wanting to remark the goodness of your disposition in all the exercises of your childhood; from whence I gather hopes, if you choose to follow where I lead the way, it will not be long ere you have an opportunity of performing many actions glorious to yourself and honorable to me. But I mean not to allure you with specious promises of pleasure, I will plainly set before you things as they really are, and show you in what manner the gods think proper to dispose them. Know therefore, young man, these wise governors of the universe have decreed, that nothing great, nothing excellent, shall be obtained without care and labor. They give no real good, no true happiness, on other terms. If, therefore, you would secure the favor of these gods, adore them. If you would conciliate to yourself the affection of your friends, be of use to them. If to be honored and respected of the republic be your aim, show your fellow-citizens how effectually you can serve them. But if it is your ambition that all Greece shall esteem you, let all Greece share the benefits arising from your labors. If you wish for the fruits of the earth, cultivate it. If for the increase of your flocks or your herds, let your flocks and your herds have your attendance and your care. And if your design is to advance yourself by arms, if you wish for the power of defending your friends, and subduing your enemies, learn the art of war under those who are acquainted with it; and, when learnt, employ it to the best advantage. And if to have a body ready and well able to perform what you wish from it be your desire, subject yours to your reason, and let exercise and hard labor give to it strength and agility.'

At these words, as Prodicus informs us, the other interrupted her:—'You see,' said she, 'my Hercules, the long, the laborious road she means to lead you; but I can conduct you to happiness by a path more short and easy.'

'Miserable wretch!' replied Virtue, 'what happiness canst thou boast of? Thou, who wilt not take the least pains to procure it! Doth not satiety always anticipate desire? Wilt thou wait till hunger invites thee to eat, or stay till thou art thirsty before thou drinkest? Or, rather, to give some relish to thy repast, must not art be called in to supply the want of appetite? while thy wines, though costly, can yield no delight, but the ice in summer is sought for to cool and make them grateful to thy palate! Beds of down, or the softest couch, can procure no sleep for thee, whom idleness inclines to seek for repose; not labor and fatigue, which alone prepare for it. Nor dost thou leave it to nature to direct thee in thy pleasures, but all is art and shameless impurity. The night is polluted with riot and crimes, while the day is given up to sloth and inactivity: and, though immortal, thou art become an outcast from the gods, and the contempt and scorn of all good men. Thou boastest of happiness, but what happiness canst thou boast of? Where was it that the sweetest of all sounds, the music of just self-praise, ever reached thine ear? Or when couldst thou view, with complacency and satisfaction, one worthy deed of thy own performing? Is there any one who will trust thy word, or depend upon thy promise; or, if sound in judgment, be of thy society? For, among thy followers, which of them, in youth, are not altogether effeminate and infirm of body? Which of them, in age, not stupid and debilitated in every faculty of the mind? While wasting their time in thoughtless indulgence, they prepare for themselves all that pain and remorse so sure to attend the close of such a life! Ashamed of the past, afflicted with the present, they weary themselves in bewailing that folly which lavished on youth all the joys of life, and left nothing to old age but pain and imbecility!'

'As for me, my dwelling is alone with the gods and good men; and, without me, nothing great, nothing excellent, can be performed, whether on earth or in the heavens; so that my praise, my esteem, is with all who know me! I make the labor of the artist pleasant, and bring to the father of his family security and joy; while the slave, as his lord, is alike my care. In peace I direct to the most useful councils, in war approve myself a faithful ally; and I only can tie the bond of indissoluble friendship. Nor do my votaries even fail to find pleasure in their repasts, though small cost is wanted to furnish out their table: for hunger, not art, prepares it for them; while their sleep, which follows the labor of the day, is far more sweet than whatever expense can procure for idleness: yet, sweet as it is, they quit it unreluctant when called by their duty, whether to the gods or men. The young enjoy the applause of the aged, the aged are reverenced and respected by the young. Equally delighted with reflecting on the past, or contemplating the present, their attachment to me renders them favored of the gods, dear to their friends, and honored by their country. And when the fatal hour is arrived, they sink not, like others, into an inglorious oblivion, but, immortalized by fame, flourish for ever in the grateful remembrance of admiring posterity! Thus, O Hercules! thou great descendant of a glorious race of heroes! thus mayest thou attain that supreme felicity wherewith I have been empowered to reward all those who willingly yield themselves up to my direction.'—FIELDING'S *Version.*

ROBERT SOUTHEY—A FIRESIDE LESSON ON CONDUCT AND WISDOM.

[The readers of that most remarkable production of Robert Southey—"The Doctor, &c."—will recall in the following conversation the principal characters which figure in the volume, so full of rare learning, quaint humor, and practical wisdom, viz., Daniel, the veritable Doctor Daniel Dove, and Dinah, his wife, and Daniel, their only son, born to them after fifteen years of wedlock, a healthy, apt, and docile child, who was growing up under the wholesome teaching of outward nature, of a quiet, pious, industrious, and reading household, and of the more formal but simple teaching of a country schoolmaster by the name of William Guy, and of a loving but half-witted uncle, William Dove:—

"Father," said the boy Daniel one day, after listening to a conversation upon this subject, [of Alchemy,] "I should like to learn to make gold."

"And what wouldst thou do, Daniel, if thou couldst make it?" was the reply.

"Why, I would build a great house, and fill it with books, and have as much money as the king, and be as great a man as the squire."

"Mayhap, Daniel, in that case thou wouldst care for books as little as the squire, and have as little time for them as the king. Learning is better than house or land. As for money, enough is enough; no man can enjoy more; and the less he can be contented with, the wiser and better he is likely to be. What, Daniel, does our good poet tell us in the great verse book?

Nature's with little pleased; enough's a feast;
A sober life but a small charge requires;
But man, the author of his own unrest,
The more he hath, the more he still desires.

No, boy, thou canst never be as rich as the king, nor as great as the squire; but thou mayst be a philosopher, and that is being as happy as either."

"A great deal happier," said Guy. "The squire is as far from being the happiest man in the neighborhood as he is from being the wisest or the best. And the king, God bless him! has care enough upon his head to bring on early gray hairs."

Uneasy lies the head that wears a crown.

"But what does a philosopher do?" rejoined the boy. "The squire hunts, and shoots, and smokes, and drinks punch, and goes to justice meetings. And the king goes to fight for us against the French, and governs the parliament, and makes laws. But I can not tell what a philosopher's business is. Do they do any thing else besides making almanacs and gold?"

"Yes," said William, "they read the stars."

"And what do they read there?"

"What neither thou nor I can understand, Daniel," replied the father, "however nearly it may concern us."

That grave reply produced a short pause. It was broken by the boy, who said, returning to the subject, "I have been thinking, father, that it is not a good thing to be a philosopher."

"And what, my son, has led thee to that thought?"

"What I have read at the end of the dictionary, father. There was one philosopher that was pounded in a mortar."

"That, Daniel," said the father, "could neither have been the philosopher's fault nor his choice."

"But it was because he was a philosopher, my lad," said Guy, "that he bore it so bravely, and said, 'Beat on; you can only bruise the shell of Anaxarchus!' If he had not been a philosopher they might have pounded him just the same, but they would never have put him in the dictionary. Epictetus in like manner bore the torments which his wicked master inflicted upon him without a groan, only saying, 'Take care, or you will break my leg;' and when the leg was broken, he looked the wretch in the face, and said, 'I told you you would break it.'"

"But," said the youngster, "there was one philosopher who chose to live in a tub; and another, who, that he might never again see any thing to withdraw his mind from meditation, put out his eyes by looking upon a bright brass basin, such as I cured my warts in."

"He might have been a wise man," said William Dove, "but not wondrous wise; for if he had, he would not have used the basin to put his eyes out. He would have jumped into a quickset hedge, and scratched them out, like the man of our town; because, when he saw his eyes were out, he might then have jumped into another hedge and scratched them in again. The man of our town was the greatest philosopher of the two."

"And there was one," continued the boy, "who had better have blinded himself at once, for he did nothing else but cry at every thing he saw. Was not this being very foolish?"

"I am sure," says William, "it was not being merry and wise."

"There was another who said that hunger was his daily food."

"He must have kept such a table as Duke Humphrey," quoth William; "I should not have liked to dine with him."

"Then there was Crates," said the persevering boy; "he had a good estate, and sold it, and threw the money into the sea, saying, 'Away, ye paltry cares! I will drown you, that ye may not drown me.'"

"I should like to know," said William, "what the overseer said to that chap, when he applied to the parish for support."

"They sent him off to bedlam, I suppose," said the mother;" "it was the fit place for him, poor creature."

"And when Aristippus set out upon a journey, he bade his servants throw away all their money, that they might travel the better. Why, they must have begged their way, and it can not be right to beg if people are not brought to it by misfortune. And there were some who thought there was no God. I am sure they were fools, for the Bible says so."

"Well, Daniel," said Guy, "thou hast studied the end of the dictionary to some purpose!"

"And the Bible, too, Master Guy!" said Dinah, her countenance brightening with joy at her son's concluding remark.

"It's the best part of the book," said the boy, replying to the schoolmaster; "there are more entertaining and surprising things there than I ever read in any other place, except in my father's book about Pantagruel."

The elder Daniel had listened to this dialogue in his usual quiet way, smiling sometimes at his brother William's observations. He now stroked his forehead, and looking mildly but seriously at the boy, addressed him thus:—

"My son, many things appear strange or silly in themselves if they are presented to us simply, without any notice when and where they were done, and upon what occasion. The things which the old philosophers said and did, would appear, I dare say, as wise to us as they did to the people of their own times, if we knew why and in what circumstances they were done and said.

Daniel, there are two sorts of men in all ranks and ways of life, the wise and the foolish; and there are a great many degrees between them. That some foolish people have called themselves philosophers, and some wicked ones, and some who were out of their wits, is just as certain as that persons of all these descriptions are to be found among all conditions of men.

Philosophy, Daniel, is of two kinds: that which relates to conduct, and that which relates to knowledge. The first teaches us to value all things at their real worth, to be contented with little, modest in prosperity, patient in trouble, equal-minded at all times. It teaches us our duty to our neighbor and ourselves. It is that wisdom of which King Solomon speaks in our rhyme book. Reach me the volume." Then turning to the passage in his favorite Du Bartas, he read these lines:—

She's God's own mirror; she's a light whose glance
Springs from the lightning of his countenance.
She's mildest heaven's most sacred influence;
Never decays her beauties' excellence.
Aye like herself; and she doth always trace
Not only the same path but the same pace.
Without her honor, health, and wealth would prove
Three poisons to me. Wisdom from above
Is the only moderatrix, spring and guide,
Organ and honor, of all gifts beside.

"But let us look in the Bible: aye, this is the place:"—

For in her is an understanding spirit, holy, one only, manifold, subtile, lively, clear, undefiled, plain, not subject to hurt, loving the thing that is good, quick, which can not be letted, ready to do good;

Kind to man, steadfast, sure, free from care, having all power, overseeing all things, and going through all understanding, pure and most subtile spirits.

For wisdom is more moving than any motion: she passeth and goeth through all things by reason of her pureness.

For she is the breath of the power of God, and a pure influence, flowing from the glory of the Almighty; therefore can no defiled thing fall into her.

For she is the brightness of the everlasting light, the unspotted mirror of the power of God, and the image of his goodness.

And being but one she can do all things; and remaining in herself she maketh all things new: and in all ages entering into holy souls she maketh them friends of God and prophets.

For God loveth none but him that dwelleth with wisdom.

For she is more beautiful than the sun, and above all the order of stars: being compared with the light she is found before it.

For after this cometh night: but vice shall not prevail against wisdom.

He read this with a solemnity that gave weight to every word. Then closing the book, after a short pause, he proceeded in a lower tone:—

"The philosophers of whom you have read in the dictionary possessed this wisdom only in part, because they were heathens, and therefore could see no further than the light of mere reason could show the way. The fear of the Lord is the beginning of wisdom, and they had not that to begin with. So the thoughts which ought to have made them humble produced pride, and so far their wisdom proved but folly. The humblest Christian who learns his duty, and performs it as well as he can, is wiser than they. He does nothing to be seen of men; and that was their motive for most of their actions.

Now for the philosophy which relates to knowledge. Knowledge is a brave thing. I am a plain, ignorant, untaught man, and know my ignorance. But it is a brave thing when we look around us in this wonderful world to understand something of what we see; to know something of the earth on which we move, the air which we breathe, and the elements whereof we are made; to comprehend the motions of the moon and stars, and measure the distances between them, and compute times and seasons; to observe the laws which sustain the universe by keeping all things in their courses; to search into the mysteries of nature, and discover the hidden virtue of plants and stones, and read the signs and tokens which are shown us, and make out the meaning of hidden things, and apply all this to the benefit of our fellow-creatures.

Wisdom and knowledge, Daniel, make the difference between man and man, and that between man and beast is hardly greater.

These things do not always go together. There may be wisdom without knowledge, and there may be knowledge without wisdom. A man without knowledge, if he walk humbly with his God, and live in charity with his neighbors, may be wise unto salvation. A man without wisdom may not find his knowledge avail him quite so well. But it is he who possesses both that is the true philosopher. The more he knows, the more he is desirous of knowing; and yet the further he advances in knowledge the better he understands how little he can attain, and the more deeply he feels that God alone can satisfy the infinite desires of an immortal soul. To understand this is the perfection of philosophy."

Then opening the Bible which lay before him, he read these verses:—

> My son, if thou wilt receive my words,—
> So that thou incline thine ear unto wisdom, and apply thine heart to understanding;
> Yea, if thou criest after knowledge, and liftest up thy voice for understanding;
> If thou seekest after her as silver, and searchest for her as for hid treasures;
> Then shalt thou understand the fear of the Lord, and find the knowledge of God.
> For the Lord giveth wisdom: out of his mouth cometh knowledge and understanding.
> He layeth up sound wisdom for the righteous: he is a buckler to them that walk uprightly.
> He keepeth the paths of judgment, and preserveth the way of his saints.
> Then shalt thou understand righteousness, and judgment, and equity; yea, every good path.
> When wisdom entereth into thine heart, and knowledge is pleasant unto thy soul;
> Discretion shall preserve thee, understanding shall keep thee,
> To deliver thee from the way of evil.

"Daniel, my son," after a pause he pursued, "thou art a diligent and good lad. God hath given thee a tender and dutiful heart; keep it so, and it will be a wise one, for thou hast the beginning of wisdom. I wish thee to pursue knowledge, because in pursuing it, happiness will be found by the way. If I have said any thing now which is above thy years, it will come to mind in after time, when I am gone, perhaps, but when thou mayst profit by it. God bless thee, my child!"

He stretched out his right hand at these words, and laid it gently upon the boy's head. What he said was not forgotten, and throughout life the son never thought of that blessing without feeling that it had taken effect.

LORD BACON AND ARCHBISHOP WHATELY ON STUDIES.

BACON'S ESSAY L. OF STUDIES.

STUDIES serve for delight, for ornament, and for ability. Their chief use for delight is in privateness,[1] and retiring; for ornament, is in discourse; and for ability, is in the judgment and disposition of business; for, expert men can execute, and perhaps judge of particulars, one by one; but the general counsels, and the plots and marshaling of affairs, come best from those that are learned. To spend too much time in studies, is sloth; to use them too much for ornament, is affectation; to make[2] judgment wholly by their rules, is the humor of a scholar; they perfect nature, and are perfected by experience—for natural abilities are like natural plants, that need pruning by study; and studies themselves do give forth directions too much at large, except they be bounded in by experience. Crafty men contemn studies, simple men admire them, and wise men use them, for they teach not their own use; but that is a wisdom without them, and above them, won by observation. Read not to contradict and confute, nor to believe and take for granted, nor to find talk and discourse, but to weigh and consider. Some books are to be tasted, others to be swallowed, and some few to be chewed and digested; that is, some books are to be read only in parts; others to be read, but not curiously;[3] and some few to be read wholly, and with diligence and attention. Some books also may be read by deputy, and extracts made of them by others; but that would[4] be only in the less important arguments, and the meaner sort of books; else distilled books are, like common distilled waters, flashy things. Reading maketh a full man, conference a ready man, and writing an exact man; and, therefore, if a man write little, he had need have a great memory; if he confer little, he had need have a present wit; and if he read little, he had need have much cunning, to seem to know that[5] he doth not. Histories make men wise; poets, witty; the mathematics, subtle; natural philosophy, deep; moral, grave; logic and rhetoric, able to contend: ‘Abeunt studia in mores’[6]—nay, there is no stond[7] or impediment in the wit, but may be wrought[8] out by fit studies, like as diseases of the body may have appropriate exercises—bowling is good for the stone and reins,[1] shooting for the lungs and breast, gentle walking for the stomach, riding for the head, and the like; so, if a man's wits be wandering, let him study the mathematics, for in demonstrations, if his wit be called away never so little, he must begin again; if his wit be not apt to distinguish or find differences,[2] let him study the schoolmen, for they are 'cymini sectores;'[3] if he be not apt to beat over matters, and to call upon one thing to prove and illustrate another, let him study the lawyers' cases—so every defect of the mind may have a special receipt.

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[1] Privateness. *Privacy.*

[2] Make. *Give.*

[3] Curiously. *Attentively.* "At first I thought there had been no light reflected from the water. but observing it more *curiously*, I saw within it several spots which appeared darker than the rest."—*Sir Isaac Newton.*

[4] Would. *Should.*

[5] That. *What.*

[6] "Manners are influenced by studies."

[7] Stond. *Hindrances.*

[8] Wrought. *Worked.* "Who, through faith, *wrought* righteousness."—*Heb.* xi 33. "How great is Thy goodness, which Thou hast *wrought* for them that trust in Thee!"—*Psalm* xxxi. 19.

ANTITHETA ON STUDIES.

PRO.	CONTRA.
"Lectio est conversatio cum prudentibus; actio fere cum stultis." "*In reading, we hold converse with the wise; in the business of life, generally with the foolish.*"	"Quæ unquam ars docuit tempestivum artis usum?" "*What art has ever taught us the suitable use of an art?*"
"Non inutiles scientiæ existimandæ sunt, quarum in se nullus est usus, si ingenia acuant, et ordinent." "*We should not consider even those sciences which have no actual practical application in themselves, as without value, if they sharpen and train the intellect.*"	"Artis sæpissime ineptus usus est, ne sit nullus." "*A branch of knowledge is often put to an improper use, for fear of its being idle.*"

ANNOTATIONS BY ARCHBISHOP WHATELY.

"*Crafty men contemn studies.*"

This contempt, whether of crafty men or narrow-minded men, often finds its expression in the word "smattering;" and the couplet is become almost a proverb—

> "A little learning is a dangerous thing;
> Drink deep, or taste not the Pierian spring."

But the poet's remedies for the dangers of a little learning are both of them impossible. None can "drink deep" enough to be, in truth, anything more than very superficial; and every human being, that is not a downright idiot, must *taste*.

It is plainly impossible that any man should acquire a knowledge of all that is to be known, on *all* subjects. But is it then meant that, on each particular subject on which he does learn anything at all, he should be perfectly well informed? Here it may fairly be asked, what is the "well?"—how much knowledge is to be called "little" or "much?" For, in many departments, the very utmost that had been acquired by the greatest proficients, a century and a half back, falls short of what is familiar to many a boarding-school miss now. And it is likely that our posterity, a century and a half hence, will in many things be just as much in advance of us. And in most subjects, the utmost knowledge that any man can attain to, is but "a little learning" in comparison of what he remains ignorant of. The view resembles that of an American forest, in which, the more trees a man cuts down, the greater is the expanse of wood he sees around him.

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[1] Reins. *Kidneys; inward parts.* "Whom I shall see for myself, though my *reins* be consumed within me."—*Job* xix. 27.

[2] Differences. *Distinctions.*

[3] "Splitters of cummin." Vid. *A. L.* I. vii 7.

But supposing you define the "much" and the "little" with reference to the existing state of knowledge in the present age and country, would any one seriously advise that those who are not proficients in astronomy should remain ignorant whether the earth moves or the sun?—that unless you are complete master of agriculture, as far as it is at present understood, there is no good in your knowing wheat from barley?—that unless you are such a Grecian as Porson, you had better not learn to construe the Greek Testament?

The other recommendation of the poet, "taste not"—that is to say, have no learning—is equally impossible. The truth is, every body has, and every body ought to have, a slight and superficial knowledge—a "smattering," if you will—of more subjects than it is possible for the most diligent student to acquire thoroughly. It is very possible, and also very useful, to have that slight smattering of chemistry which will enable one to distinguish from the salts used in medicine, the oxalic acid, with which, through mistake, several persons have been poisoned. Again, without being an eminent botanist, a person may know—what it is most important to know—the difference between cherries and the berries of the deadly nightshade; the want of which knowledge has cost many lives.

Again, there is no one, even of those who are not profound politicians, who is not aware that we have Rulers; and is it not proper that he should understand that government is necessary to preserve our lives and property? Is he likely to be a worse subject for knowing that? That depends very much on the kind of government you wish to establish. If you wish to establish an unjust and despotic government—or, if you wish to set up a false religion—then it would be advisable to avoid the danger of enlightening the people. But if you wish to maintain a good government, the more the people understand the advantages of such a government, the more they will respect it; and the more they know of true religion, the more they will value it.

There is nothing more general among uneducated people than a disposition to socialism, and yet nothing more injurious to their own welfare. An equalization of wages would be most injurious to themselves, for it would, at once, destroy all emulation. All motives for the acquisition of skill, and for superior industry, would be removed. Now, it is but a *little* knowledge of political economy that is needed for the removal of this error; but that little is highly useful.

Again, every one knows, no matter how ignorant of medicine, that there is such a thing as disease. But as an instance of the impossibility of the "taste not" recommendation of the poet, a fact may be mentioned, which perhaps is known to most. When the cholera broke out in Poland, the peasantry of that country took it into their heads that the nobles were poisoning them in order to clear the country of them; they believed the rich to be the authors of that terrible disease; and the consequence was that the peasantry rose in masses, broke into the houses of the nobility, and finding some chloride of lime, which had been used for the purpose of disinfecting, they took it for the poison which had caused the disease; and they murdered them. Now, that was the sort of "little learning" which was very dangerous.

Again we can not prevent people from believing that there is some superhuman

Being who has regard to human affairs. Some clowns in the Weald of Kent, who had been kept as much as possible on the "taste not" system,—left in a state of gross ignorance,—yet believed that the Deity did impart special powers to certain men; and that belief, coupled with excessive stupidity, led them to take an insane fanatic for a prophet. In this case, this "little learning" actually caused an insurrection in his favor, in order to make him king, priest and prophet of the British empire; and many lives were sacrificed before this insane insurrection was put down. If a "little learning" is a "dangerous thing," you will have to keep people in a perfect state of idiotcy in order to avoid that danger. I would, therefore, say that both the recommendations of the poet are impracticable.

The question arises, what are we to do? Simply to impress upon ourselves and upon all people the importance of laboring in that much neglected branch of human knowledge—the knowledge of our own ignorance;—and of remembering that it is by a confession of real ignorance that real knowledge must be gained. But even when that further knowledge is not attained, still even the knowledge of the ignorance is a great thing in itself; so great, it seems, as to constitute Socrates the wisest of his time.

Some of the chief sources of *unknown* ignorance may be worth noticing here. They are to be found in our not being aware: 1. How inadequate a medium language is for conveying thought. 2. How inadequate our very minds are for the comprehension of many things. 3. How little we need understand a word which may yet be familiar to us, and which we may use in reasoning. This piece of ignorance is closely connected with the two foregoing. (Hence, frequently, men will accept as an explanation of a phenomenon, a mere statement of the difficulty in other words.) 4. How utterly ignorant we are of efficient causes; and how the philosopher who refers to the law of gravitation the falling of a stone to the earth, no further explains the phenomenon than the peasant, who would say it is the nature of it. The philosopher knows that the stone obeys the *same* law to which all *other* bodies are subject, and to which, for convenience, he gives the name of gravitation. His knowledge is only more *general* than the peasant's; which, however, is a vast advantage. 5. How many words there are that express, not the nature of the thing they are applied to, but the manner in which they *affect us;* and which, therefore, give about as correct a notion of those things, as the word "crooked" would, if applied to a stick half immersed in water. (Such is the word *Chance*, with all its family.) 6. How many causes may, and usually do, conduce to the same effect. 7. How liable the faculties, even of the ablest, are to occasional failure; so that they shall overlook mistakes (and those often the most at variance with their own established notions) which, *when once exposed*, seem quite gross even to inferior men. 8. How much all are biassed, in all their moral reasonings, by self-love, or perhaps, rather, partially to *human nature*, and other passions. 9. Dugald Stewart would add very justly, How little we know of *matter;* no more indeed than of mind; though all are prone to attempt explaining the phenomena of mind by those of matter: for, what is *familiar* men generally consider as *well known*, though the fact is oftener otherwise.

The errors arising from these causes, and from not calculating on them,—that is, in short, from ignorance of our own ignorance, have probably impeded philosophy more than all other obstacles put together.

Certain it is, that only by this ignorance of our ignorance can "a little learning" become "a dangerous thing." The dangers of knowledge are not to be compared with the dangers of ignorance. A man is more likely to miss his way in darkness than in *twilight*: in twilight than in full sun. And those contemners of studies who say (with Mandeville, in his *Treatise against Charity-schools*) "If a horse knew as much as a man, I should not like to be his rider," ought to add, "If a man knew as little as a horse, I should not like to trust him to ride." It is indeed possible to educate the children of the poor so as to disqualify them for an humble and laborious station in life; but this mistake does not so much consist in the *amount* of the knowledge imparted, as in the *kind* and the *manner* of education. Habits early engrafted on children, of regular attention,—of steady application to what they are about,—of prompt obedience to the directions they receive,—of cleanliness, order, and decent and modest behavior, can not but be of advantage to them in after life, whatever their station may be. And certainly, their familiar acquaintance with the precepts and example of Him who, when all stations of life were at his command, chose to be the reputed son of a poor mechanic, and to live with peasants and fishermen; or, again, of his apostle Paul, whose own hands "ministered to his necessities," and to those of his companions:—such studies, I say, can surely never tend to unfit any one for a life of humble and contented industry.

What, then, is the "smattering"—the imperfect and superficial knowledge—that really does deserve contempt? A slight and superficial knowledge is justly condemned, when it is put in the place of more full and exact knowledge. Such an acquaintance with chemistry and anatomy, *e. g.* as would be creditable, and not useless, to a lawyer, would be contemptible for a physician; and such an acquaintance with law as would be desirable for him, would be a most discreditable smattering for a lawyer.

It is to be observed that the word smattering is applied to two different kinds of scanty knowledge—the *rudimentary* and the *superficial*; though it seems the more strictly to belong to the latter. Now, as it is evident that no one can learn all things perfectly, it seems best for a man to make some pursuit his main object, according to, first, his *calling*; secondly, his *natural bent*; or thirdly, his *opportunities*: then, let him get a slight knowledge of what else is worth it, regulated in his choice by the same three circumstances; which should also determine, in great measure, where an elementary and where a superficial knowledge is desirable. Such as are of the most dignified and philosophical nature are most proper for elementary study; and such as we are the most likely to be called upon to practice for ourselves, the most proper for superficial; *e. g.*, it would be to most men of no practical use, and, consequently, not worth while, to learn by heart the meaning of some of the Chinese characters; but it might be very well worth while to study the principles on which that most singular language is constructed; *contra*, there is nothing very curious or interesting in the structure of the Portuguese language; but if one were going to travel in Portugal, it would be worth while to pick up some words and phrases. If both circumstances conspire, then, both kinds of information are to be sought for; and such things should be learned a little at *both ends*; that is, to understand the elementary and fundamental *principles*, and also to know some of the most remarkable *results*—a little of the rudiments, and a little of what is most called for in practice. *E. g.*, a man who has not made any of the physical or mathematical sciences his favorite pursuit, ought yet to know the principles of geometrical reasoning, and the elements of mechanics; and also to know, by rote, something of the magnitude, distances, and motions of the heavenly bodies, though without having gone over the intermediate course of scientific demonstration.

Grammar, logic, rhetoric, and metaphysics, [or the philosophy of mind,] are manifestly studies of an *elementary* nature, being concerned about the instruments which we employ in effecting our purposes; and ethics, which is, in fact, a branch of metaphysics, may be called the elements of conduct. Such knowledge is far from showy. Elements do not much come into sight; they are like that part of a bridge which is under water, and is therefore least admired, though it is not the work of least art and difficulty. On this ground it is suitable to females, as least leading to that pedantry which learned ladies must ever be peculiarly liable to, as well as least exciting that jealousy to which they must ever be exposed, while learning in them continues to be a *distinction*. A woman might, in this way, be very learned without any one's finding it out.

"*Read not to contradict and confute, nor to believe and take for granted, nor to find talk and discourse, but to weigh and consider. Some books are to be tasted, others to be swallowed, and some few to be chewed and digested.*"

It would have been well if Bacon had added some hints as to the *mode* of study: *how* books are to be chewed, and swallowed, and digested. For, besides inattentive readers, who measure their proficiency by the pages they have gone over, it is quite possible, and not uncommon, to read most laboriously, even so as to get by heart the words of a book, without really *studying* it at all; that is, without employing the *thoughts* on the *subject*.

In particular, there is, in reference to Scripture,[1] "a habit cherished by some persons, of reading—assiduously, indeed—but without any attentive reflection and studious endeavor to ascertain the real sense of what they read—concluding that whatever impression is found to be left on the mind after a bare perusal of the words, must be what the sacred writers designed. They use, in short, little or none of that care which is employed on any other subject in which we are much interested, to read through each treatise consecutively as a whole,—to compare one passage with others that may throw light on it, and to consider what was the general drift of the author, and what were the occasions, and the persons he had in view.

"In fact, the real *students* of Scripture, properly so called, are, I fear, fewer than is commonly supposed. The theological student is often a student chiefly of some human system of divinity, fortified by *references* to Scripture, introduced from time to time as there is occasion. He proceeds—often unconsciously—by setting himself to ascertain, not what is the information or instruction to be derived from a certain narrative or discourse of one of the sacred writers, but what aid can be derived from them towards establishing or refuting this or that point of dogmatic theology. Such a mode of study surely ought at least not to be exclusively pursued. At any rate, it can not properly be called a *study of Scripture*.

"There is, in fact, a danger of its proving a great *hindrance* to the profitable study of Scripture; for so strong an association is apt to be established in the mind between certain expressions, and the *technical* sense to which they have been confined in some theological system, that when the student meets with them in Scripture, he at once understands them in that sense, in passages where perhaps an unbiassed examination of the context would plainly show that such was not the author's meaning. And such a student one may often find expressing the most unfeigned wonder at the blindness of those who can not find in Scripture such and such doctrines, which appear to him to be as clearly set forth there as words can express; which perhaps they are, on the (often gratuitous) *supposition* that those words are everywhere to be understood exactly in the sense which he has previously derived from some human system,—a system through which, as through a discolored medium, he views Scripture. But this is not to take Scripture for one's guide, but rather to make one's self *a guide* to Scripture.

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[1] See *Essays on the Difficulties of St. Paul's Epistles*. Essay X. page 233.

"Others, again, there are, who are habitual readers of the Bible, and perhaps of little else, but who yet can not properly be said to *study* anything at all on the subject of religion, because, as was observed just above, they do not even attempt to exercise their mind on the subject, but trust to be sufficiently enlightened and guided by the mere act of perusal, while their minds remain in a passive state. And some, I believe, proceed thus on principle, considering that they are the better recipients of revealed truth the less they exercise their own reason.

"But this is to proceed on a totally mistaken view of the real province of reason. It would, indeed, be a great error to attempt *substituting* for revelation conjectures framed in our own mind, or to speculate on matters concerning which we have an imperfect knowledge imparted to us by revelation, and could have had, without it, none at all. But this would be, not to use, but to abuse, our rational faculties. By the use of our senses, which are as much the gift of the Creator as anything else we enjoy,—and by employing our reason on the objects around us, we can obtain a certain amount of valuable knowledge. And beyond this, there are certain other points of knowledge unattainable by these faculties, and which God has thought fit to impart to us by his inspired messengers. But *both* the volumes—that of Nature and that of Revelation—which He has thought good to lay before us, are to be carefully studied. On both of them we must diligently employ the faculties with which He, the Author of both, has endued us, if we would derive full benefit from his gifts.

"The telescope, we know, brings within the sphere of our own vision much that would be undiscernible by the naked eye; but we must not the less employ our eyes in making use of it; and we must watch and calculate the motions, and reason on the appearances, of the heavenly bodies, which are visible only through the telescope, with the same care we employ in respect of those seen by the naked eye.

"And an analogous procedure is requisite if we would derive the intended benefit from the pages of inspiration, which were designed not to save us the trouble of inquiring and reflecting, but to enable us, on some points, to inquire and reflect to better purpose,—not to supersede the use of our reason, but to supply its deficiencies."

Although, however, it is quite right, and most important, that the *thoughts* should be exercised on the subject of what you are reading, there is one mode of exercising the thoughts that is very hurtful; which is, that of *substituting conjectures* for attention to what the author says. *Preliminary* reflection on the subject is, as has been above said, very useful in many cases; though, by the way, it is unsafe as a preparation for the study of *Scripture;* and, in all studies, care should be taken to guard against allowing the judgment to be biased by notions hastily and prematurely adopted. And again, *after* you have studied an author, it will be very advisable (supposing it is an uninspired and consequently fallible one) to reflect on what he says, and consider whether he is right, and how far.

But while *actually engaged* in perusal, attend to what the writer actually says, and endeavour fairly to arrive at *his* meaning, *before* you proceed to speculate upon it for yourself.

The study of a book, in short, should be conducted nearly according to the same rule that Bacon lays down for the study of nature. He warns philosophers, earnestly and often, against substituting for what he calls the "interrogatio naturæ," the "anticipatio naturæ;" that is, instead of attentive observation and experiment, forming conjectures as to what seems to us *likely*, or *fitting*, according to some hypothesis devised by ourselves. In like manner, in studying an author, you should *keep apart* interpretation and conjecture.

A good teacher warns a student of some book in a foreign language that he is learning, not to *guess* what the author is likely to have meant, and then twist the words into that sense, against the idiom of the language; but to be *led by* the words in the first instance; and then, if a difficulty as to the sense remains, to guess which of the possible meanings of the words is the most likely to be the right.

E. g. The words in the original of John xviii. 15, *ὁ ἄλλος μαθητὴς*, plainly signify "*the* other disciple;" and one of the commentators, perceiving that this is inconsistent with the opinion he had taken up, that this disciple was John himself, (since John had not been mentioned before, and the article, therefore, would make it refer to Judas, who alone had been just above named,) boldly suggests that the *reading must be wrong*, (though all the MSS. agree in it,) and that the article ought to be omitted, because it *spoils the sense;* that is, the sense which agrees with a *conjecture* adopted in defiance of the words of the passage.

This one instance may serve as a specimen of the way in which some, instead of interpreting an author, undertake to re-write what he has said.

The like rule holds good in other studies, quite as much as in that of a language. We should be ever on our guard against the tendency to read through *colored spectacles.*

Educational habits of thought, analogies, antecedent reasonings, feelings, and wishes, &c., will be always leading us to form some conjectural hypothesis, which is not necessarily hurtful, and may sometimes furnish a useful hint, but which must be most carefully watched, lest it produce an unfair bias, and lead you to strain into a conformity with it the words or the phenomena before you.

A man sets out with a conjecture as to what the Apostles are *likely* to have said, or *ought* to have said, in conformity with the the theological system he has learnt; or what the Most High may have done or designed; or what is or is not agreeable to the "analogy of faith," (see Campbell *on the Gospels;*) *i. e.*, of a piece with the christian system—namely, that which *he* has been taught, by fallible *men*, to regard as the christian system; and then he proceeds to examine Scripture, as he would examine with *leading questions* a witness whom he had summoned in his cause.

"As the fool thinketh,
So the bell chinketh."

Perhaps he "*prays through*" all the Bible; not with a candid and teachable mind, seeking instruction, but unconsciously praying that he may *find himself in the right.* And he will seldom fail.

> "Hic liber est in quo quærit sua dogmata quisque;
> Invenit et pariter dogmata quisque sua."
>
> "In this book many students seek each one to find
> The doctrine or precept that's most to his mind:
> And each of them finds what they earnestly seek;
> For as the fool thinks, even so the bells speak."

It is the same with philosophy. If you have a strong wish to find phenomena such as to confirm the conjectures you have formed, and allow that wish to bias your examination, you are ill-fitted for interrogating nature. Both that, and *the other volume* of the records of what God does,—Revelation,—are to be interrogated, not as *witnesses*, but as *instructors*. You must let all your conjectures *hang loose* upon you; and be prepared to learn *from* what is written in each of those volumes, with the aid of the conjectures of reason; not *from* reason, (nor, by the by, from feelings and fancies, and wishes, and human authority,) with Scripture for your *aid.*

This latter procedure, which is a very common one with theological students, may be called making an *anagram* of Scripture,—taking it to pieces and reconstructing it in the model of some human system of "Institutes:" building a temple of one's own, consisting of the stones of the true one pulled down and put together in a new fashion.

Yet divines of this description are often considered by others as well as by themselves, pre-eminently scriptural, from their continual employment of the *very words* of Scripture, and their readiness in citing a profusion of texts. But, in reality, instead of using a human *commentary* on Scripture, they use Scripture itself as a kind of commentary on some human system. They make the *warp* human, and interweave an abundance of Scripture as a *woof;* which is just the reverse of the right procedure. But this may be called, truly, in a certain sense, "*taking* a text *from* Scripture," "preaching such and such a doctrine *out of* Scripture," and "*improving* Scripture."

Thus it is that men, when comparing their opinions with the standard of God's Word, suffer these opinions to *bend the rule* by which they are to be measured. But he who studies the Scriptures should remember that he is consulting the Spirit of Truth, and if he would hope for his aid, through whose enlightening and supporting grace alone those Scriptures can be read with advantage, he must search honestly and earnestly for the truth.

"*Read not to contradict and confute; nor to believe and take for granted.*"

With respect to the deference due to the opinions (written or spoken) of intelligent and well-informed men, it may be remarked, that *before* a question has been fully argued, there is a presumption that they are in the right; but *afterwards*, if objections have been brought which they have failed to answer, the presumption is the other way. The wiser, and the more learned, and the more numerous, are those opposed to you, and the more strenuous and persevering their opposition, the greater is the probability that if there were any flaw in your argument they would have refuted you. And therefore your adhering to an opposite opinion from theirs, so far from being a mark of arrogant contempt, is, in reality, the strongest proof of a high respect for them. For example—The strongest confirmation of the fidelity of the translations of Scripture published by the Irish School Commissioners, is to be found in the many futile attempts, made by many able and learned men, to detect errors in them.

This important distinction is often overlooked.

"*Reading maketh a full man, conference a ready man, and writing an exact man.*"

Writing an Analysis, table of Contents, Index, or Notes to any book, is very important for the study, properly so called, of any subject. And so, also, is the practice of *previously* conversing or writing on the subject you are about to study.

I have elsewhere alluded to this kind of practice,[1] and suggested to the teacher "to put before his pupils, *previously* to their reading each lesson, some questions pertaining to the matter of it, requiring of them answers, oral or written, the best they can think of *without* consulting the book. Next, let them read the lesson, having other questions, such as may lead to any needful explanations, put before them as they proceed. And afterwards let them be examined (introducing numerous examples framed by themselves and by the teacher) as to the portion they have learned, in order to judge how far they remember it.

"Of the three kinds of questions,—which may be called, 1, *preliminary* questions; 2, questions of *instruction;* and 3, questions of *examination*,—the last alone are, by a considerable portion of instructors, commonly employed. And the elementary books commonly known as 'catechims,' or 'books in question and answer,' consist, in reality, of questions of this description.

"But the second kind—what is properly to be called instructive questioning—is employed by all who deserve to be reckoned good teachers.

"The first kind—the preliminary questioning—is employed (systematically and constantly) but by few. And, at first sight, it might be supposed by those who have not had experience of it, that it would be likely to increase the learner's difficulties. But if any well-qualified instructor will but carefully and judiciously try the experiment (in teaching any kind of science,) he will be surprised to find to how great a degree this exercise of the student's mind on the subject will contribute to his advancement. He will find that what has been taught in the mode above suggested, will have been learnt in a shorter time, will have been far the more thoroughly understood, and will be fixed incomparably the better in the memory."

Curiosity is as much the parent of attention, as attention is of memory; therefore the first business of a teacher—first, not only in point of time, but of importance—should be to excite, not merely a general curiosity on the subject of the study, but a particular curiosity on particular points in that subject. To teach one who has no curiosity to learn, is to sow a field without ploughing it.

And this process saves a student from being (as many are) intellectually damaged by having a very good memory. For an unskillful teacher is content to put before his pupils what they have to learn, and ascertaining that they remember it. And thus those of them whose memory is ready and attentive, have their mind left in a merely passive state, and are like a person always carried about in a sedan chair, till he has almost lost the use of his limbs. And then it is made a wonder that a person who has been so well taught, and who was so quick in learning and remembering, should not prove an able man; which is about as reasonable as to expect that a capacious cistern, if filled, should be converted into a perennial fountain. Many are saved, by the deficiency of their memory, from being spoiled by their education; for those who have no extraordinary memory, are driven to supply its defects by *thinking*. If they do not remember a mathematical demonstration, they are driven to devise one. If they do not exactly retain what Aristotle or Smith have said, they are driven to consider what they were *likely* to have said, or ought to have said. And thus their faculties are invigorated by exercise.

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[1] See Preface to *Easy Lessons on Reasoning*. Page v.

Now, this kind of exercises a skillful teacher will afford to *all;* so that no one shall be spoiled by the goodness of his memory.

A very common practice may be here noticed, which should be avoided, if we would create a habit of studying with profit—that of making children *learn by rote* what they do not *understand*. "It is done on this plea—that they will hereafter learn the meaning of what they have been thus taught, and will be able to make a practical use of it."[1] But no attempt at economy of time can be more injudicious. Let any child whose capacity is so far matured as to enable him to comprehend an explanation,—*e. g.*, of the Lord's Prayer,—have it *then* put before him for the first time, and when he is made acquainted with the meaning of it, set to learn it by heart; and can any one doubt that, in less than a half a day's application, he would be able to repeat it fluently? And the same would be the case with other forms. All that is learned by rote by a child before he is competent to attach a meaning to the words he utters, would not, if all put together, amount to so much as would cost him, when able to understand it, a week's labor to learn perfectly. Whereas, it may cost the toil, often the vain toil, of many years, to unlearn the habit of *formalism*—of repeating words by rote without attending to their meaning; a habit which every one conversant with education knows to be in all subjects most readily acquired by children, and with difficulty avoided even with the utmost care of the teacher; but which such a plan must inevitably tend to generate. It is often said, and very truly, that it is important to form early habits of piety; but to train a child in one kind of habit, is not the most likely way of forming the opposite one; and nothing can be more contrary to true piety, than the Romish superstition (for such in fact it is) of attaching efficacy to the repetition of a certain form of words as a charm, independent of the understanding and of the heart.

"It is also said, with equal truth, that we ought to take advantage of the facility which children possess of learning; but to infer from thence, that Providence designs us to make such a use (or rather abuse) of this gift as we have been censuring, is as if we were to take advantage of the readiness with which a new-born babe swallows whatever is put into its mouth, to dose it with ardent spirits, instead of wholesome food and necessary medicine. The readiness with which children learn and remember words, is in truth a most important advantage if rightly employed; viz., if applied to the acquiring that mass of what may be called *arbitrary* knowledge of insulated facts, which *can only* be learned by rote, and which is necessary in after life; when the acquisition of it would both be more troublesome, and would encroach on time that might otherwise be better employed. Chronology, names of countries, weights and measures, and indeed all the *words* of any language, are of this description. If a child had even ten times the ordinary degree of the faculty in question, a judicious teacher would find abundance of useful employment for it, without resorting to any that could possibly be detrimental to his future habits, moral, religious, or intellectual."

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[1] *London Review.* No. xi., pages 412, 413.

One very useful precept for students, is never to *remain long* puzzling out any difficulty; but lay the book and the subject aside, and return to it some hours after, or next day; after having turned the attention to something else. Sometimes a person will weary his mind for several hours in some efforts (which might have been spared) to make out some difficulty; and next day, when he returns to the subject, will find it quite easy.

The like takes place in the effort to recollect some *name*. You may fatigue yourself in vain for hours together; and if you turn to something else (which you might as well have done at once) the name will, as it were, flash across you without an effort.

There is something analogous to this, in reference to the scent of dogs. When a wounded bird, for instance, has been lost in the the thicket, and the dogs fail, after some search, to find it, a skillful sportsman always draws them off, and hunts them elsewhere for an hour, and then brings them back to the spot to try afresh; and they will often, then, find their game readily: though, if they had been hunting for it all the time, they would have failed.

It seems as if the dog—and the mind—having got into a kind of *wrong* track, continued in the same error, till drawn completely away elsewhere.

Always trust, therefore, for the overcoming of a difficulty, not to *long continued* study after you have once got bewildered, but to *repeated* trials, at intervals.

It may be here observed, that the student of any science or art should not only distinctly understand all the technical language, and all the rules of the art, but also learn them by heart, so that they may be remembered as familiarly as the alphabet, and employed *constantly* and with scrupulous exactness. Otherwise, technical language will prove an encumbrance instead of an advantage, just as a suit of clothes would be, if instead of putting them on and wearing them, one should carry them about in his hand.

"*There is no stond or impediment in the wit, but may be wrought out by fit studies.*"

It is a pity that Bacon did not more fully explain the mode in which different kinds of studies act on the mind. As an exercise of the reasoning faculty, pure mathematics is an admirable exercise, because it consists of *reasoning* alone, and does not encumber the student with any exercise of *judgment:* and it is well always to begin with learning one thing at a time, and to defer a combination of mental exercises to a later period. But then it is important to remember that mathematics does *not* exercise the *judgment;* and consequently, if too exclusively pursued, may leave the student very ill qualified for moral reasonings.

"The definitions, which are the principles of our reasoning, are very *few*, and the axioms still fewer; and both are, for the most part, *laid down* and *placed before the student in the outset;* the introduction of a new definition or axiom being of comparatively rare occurrence, at wide intervals, and with a *formal* statement, besides which, there is no room for *doubt* concerning either. On the other hand, in all reasonings which regard matters of fact, we introduce, almost at *every step*, fresh and fresh propositions (to a very great number) which had not been elicited in the course of our reasoning, but are taken for granted; viz., facts, and laws of nature, which are here the principles of our reasoning, and *maxims*, or 'elements of belief,' which answer to the axioms in mathematics. If, at the opening of a treatise, for example, on chemistry, on agriculture, on political economy, &c., the author should make, as in mathematics, a formal statement of all the propositions he intended to assume as granted, throughout the whole work, both he and his readers would be astonished at the number; and, of these, many would be only probable, and there would be much room for doubt as to the *degree* of probability, and for judgment in ascertaining that degree.

"Moreover, mathematical axioms are always employed precisely *in the same simple form: e. g.*, the axiom that 'the things equal to the same are equal to one another,' is cited, whenever there is need, in those very words; whereas the maxims employed in the other class of subjects, admit of, and require, continual modifications in the application of them. *E. g.*, 'the stability of the laws of nature,' which is our constant assumption in inquiries relating to natural philosophy, appears in many different shapes, and in some of them does not possess the same complete certainty as in others; *e. g.*, when, from having always observed a certain sheep ruminating, we infer, that this individual sheep will continue to ruminate, we assume that 'the property which has hitherto belonged to this sheep will remain unchanged;' when we infer the same property of all sheep, we assume that 'the property which belongs to this individual belongs to the whole species;' if, on comparing sheep with some other kinds of horned animals,[1] and finding that all agree in ruminating, we infer that 'all horned animals ruminate,' we assume that 'the whole of a genus or class are likely to agree in any point wherein many species of that genus agree:' or in other words, 'that if one of two properties, &c., has *often* been found accompanied by another, and never without it, the former will be *universally* accompanied by the latter;' now all these are merely different forms of the maxim, that 'nature is uniform in her operations,' which, it is evident, varies in expression in almost every different case where it is applied, and the application of which admits of every degree of evidence, from perfect moral certainty, to mere conjecture.

"The same may be said of an infinite number of principles and maxims appropriated to, and employed in, each particular branch of study. Hence, all such reasonings are, in comparison of mathematics, very complex; requiring so much *more* than that does, beyond the process of merely deducing the conclusion logically from the premises: so that it is no wonder that the longest mathematical demonstration should be so much more easily constructed and understood than a much shorter train of just reasoning concerning real facts. The former has been aptly compared to a long and steep, but even and regular, flight of steps, which tries the breath, and the strength, and the perseverance only; while the latter resembles a short, but rugged and uneven, ascent up a precipice, which requires a quick eye, agile limbs, and a firm step; and in which we have to tread now on this side, now on that—ever considering, as we proceed, whether this or that projection will afford room for our foot, or whether some loose stone may not slide from under us. There are probably as many steps of pure reasoning in one of the longer of Euclid's demonstrations, as in the whole of an argumentative treatise on some other subject, occupying perhaps a considerable volume.

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[1] Viz., having horns *on the skull*. What are called the horns of the rhinoceros are quite different in origin, and in structure, as well as in situation, from what are properly called horns.

"It may be observed here that mathematical reasoning, as it calls for no exercise of judgment respecting probabilities, is the best kind of introductory exercise; and from the same cause, is apt, when too exclusively pursued, to make men incorrect moral reasoners.

"As for those ethical and legal reasonings which were lately mentioned as in some respects resembling those of mathematics, (viz., such as keep clear of all assertions respecting facts,) they have this difference; that not only men are not so completely *agreed* respecting the maxims and principles of ethics and law, but the meaning also of each term can not be absolutely, and for ever, fixed by an arbitrary definition; on the contrary, a great part of our labor consists in distinguishing accurately the various senses in which men employ each term,—ascertaining which is the most proper,—and taking care to avoid confounding them together.

"It may be worth while to add in this place, that as a candid disposition,—a hearty desire to judge fairly, and to attain truth,—are evidently necessary with a view to give fair play to the reasoning powers, in subjects where we are liable to a bias from interest or feelings, so, a fallacious perversion of this maxim finds a place in the minds of some persons; who accordingly speak disparagingly of *all* exercise of the reasoning faculty in moral and religious subjects; declaiming on the insufficiency of *mere* intellectual power for the attainment of truth in such matters,—on the necessity of appealing to the heart rather than to the head, &c., and then leading their readers or themselves to the conclusion that the less we *reason* on such subjects the safer we are.

"But the proper office of candor is to *prepare* the mind not for the *rejection* of all evidence, but for the right *reception* of evidence;—not to be a *substitute* for reasons, but to enable us *fairly to weigh* the reasons on both sides. Such persons as I am alluding to are in fact saying that since just weights *alone*, without a just balance, will avail nothing, therefore we have only to take care of the scales, and let the weights take care of themselves.

"This kind of tone is of course most especially to be found in such writers as consider it expedient to inculcate on the mass of mankind what—there is reason to suspect—they do not themselves fully believe, and which they apprehend is the more likely to be rejected the more it is investigated."

A curious anecdote (which I had heard, in substance, some years before) was told me by the late Sir Alexander Johnstone. When he was acting as temporary governor of Ceylon, (soon after its cession,) he sat once as judge in a trial of a prisoner for a robbery and murder; and the evidence seemed to him so conclusive, that he was about to charge the jury (who were native Cingalese) to find a verdict of guilty. But one of the jury asked and obtained permission to examine the witnesses himself. He had them brought in one by one, and cross-examined them so ably as to elicit the fact that they were *themselves* the perpetrators of the crime, which they afterwards had conspired to impute to the prisoner. And they were accordingly put on their trial and convicted.

Sir A. J. was greatly struck by the intelligence displayed by this juror; the more, as he was only a small farmer, who was not known to have had any remarkable advantages of education. He sent for him, and after commending the wonderful sagacity he had shown, inquired eagerly what his studies had been. The man replied that he had never read but one book, the only one he possessed, which had long been in his family, and which he delighted to study in his leisure hours. This book he was prevailed on to show to Sir A. J., who put it into the hands of one who knew the Cingalese language. It turned out to be a translation into that language of a large portion of Aristotle's *Organon*. It appears that the Portuguese, when they first settled in Ceylon and other parts of the East, translated into the native languages several of the works then studied in the European Universities; among which were the Latin versions of Aristotle.

The Cingalese in question said that if his understanding had been in any degree cultivated and improved, it was to that book he owed it.

It is very important to warn all readers of the influence likely to be exercised in the formation of their opinions, *indirectly*, and by works not professedly argumentative, such as Poems and Tales. Fletcher of Saltoun said, he would let any one have the making of the laws of a country, if he might have the making of their ballads.

An observation in the *Lectures on Political Economy* on one cause which has contributed to foster an erroneous opinion of the superior moral purity of poor and half-civilized countries, is equally applicable to a multitude of other cases, on various subjects. "One powerful, but little suspected cause, I take to be, an early familiarity with poetical descriptions of pure, unsophisticated, rustic life, in remote, sequestered, and unenlightened districts;—of the manly virtue and practical wisdom of our simple forefathers, before the refinements of luxury had been introduced;—of the adventurous wildness, so stimulating to the imagination, of savage or pastoral life, in the midst of primæval forests, lofty mountains, and all the grand scenery of uncultivated nature. Such subjects and scenes are much better adapted for poets, than thronged cities, workshops, coalpits, and iron-foundries. And poets, whose object is to please, of course keep out of sight all the odious or disgusting circumstances pertaining to the life of the savage or the untutored clown, and dwell exclusively on all the amiable and admirable parts of that simplicity of character which they feign or fancy. Early associations are thus formed, whose influence is often the stronger and the more lasting, from the very circumstance that they are formed *unconsciously*, and do not come in the form of propositions demanding a deliberate assent. Poetry does not profess to aim at conviction; but it often leaves impressions which affect the reasoning and the judgment. And a false impression is perhaps oftener conveyed in other ways than by sophistical argument; because *that* rouses the mind to exert its powers, and to assume, as it were, a reasoning mood."[1]

The influence exercised by such works is overlooked by those who suppose that a child's character, moral and intellectual, is formed by those books only which are put into his hands with that *design*. As hardly anything can accidentally touch the soft clay without stamping its mark on it, so, hardly any reading can interest a child without contributing in some degree, though the book itself be afterwards totally forgotten, to form the character; and the parents, therefore, who, merely requiring from him a certain course of *study*, pay little or no attention to story-books, are educating him they know not how.

And here, I would observe that in books designed for children there are two extremes that should be avoided. The one, that reference to religious principles in connection with matters too trifling and undignified, arising from a well-intentioned zeal, causing a forgetfulness of the maxim whose notorious truth has made it proverbial, "Too much familiarity breeds contempt." And the other is the contrary, and still more prevailing extreme, arising from a desire to preserve a due *reverence* for religion, at the expense of its useful application in conduct. But a line may be drawn which will keep clear of both extremes. We should not exclude the association of things sacred with whatever are to *ourselves* trifling matters, (for "these little things are great" to children,) but, with whatever is viewed by *them* as trifling. Every thing is great or small in reference to the parties concerned. The private concerns of any obscure individual are very insignificant to the world at large, but they are of great importance to himself. And all worldly affairs must be small in the sight of the Most High; but irreverent familiarity is engendered in the mind of any one, then, and then only, when things sacred are associated with such as are, to him, insignificant things.

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[1] In an article in a Review I have seen mention made of a person who discovered the falsity of a certain doctrine (which, by the way, is nevertheless a true one, that of Malthus,) *instinctively*. This kind of instinct, *i. e.* the habit of forming opinions at the suggestion rather of feeling than of reason, is very common.

And here I would add that those works of fiction are worse than unprofitable that inculcate morality, with an exclusion of all reference to religious principle. This is obviously and notoriously the character of Miss Edgeworth's moral tales. And so entire and resolute is this exclusion, that it is maintained at the expense of what may be called poetical truth; it destroys, in many instances, the probability of the tale, and the naturalness of the characters. That Christianity *does* exist, every one must believe as an incontrovertible truth; nor can any one deny that, whether true or false, it does exercise,—at least is supposed to exercise,—an influence on the feelings and conduct of some of the believers in it. To represent, therefore, persons of various ages, sex, country, and station in life, as practicing, on the most trying occasions, every kind of duty, and encountering every kind of danger, difficulty, and hardship, while none of them ever makes the least reference to a religious motive, is as decidedly at variance with reality,—what is called in works of fiction *unnatural*,—as it would be to represent Mahomet's enthusiastic followers as rushing into battle without any thought of his promised paradise. This, therefore, is a blemish *in point of art*, which every reader possessing taste must perceive, whatever may be his religious or non-religious persuasion. But a far higher, and more important, question than that of taste is involved. For though Miss Edgeworth may entertain opinions which would not permit her, with consistency, to attribute more to the influence of religion than she has done, and in that case may stand acquitted, *in foro conscientiæ*, of willfully suppressing anything which she acknowledges to be true and important; yet, as, a writer, it must still be considered as a great blemish, in the eyes at least of those who think differently, that virtue should be studiously inculcated, with scarcely any reference to what they regard as the mainspring of it,—that vice should be traced to every other source except the want of religious principle,—that the most radical change from worthlessness to excellence should be represented as wholly independent of that Agent which they consider as the only one that can accomplish it,—and that consolation under affliction should be represented as derived from every source, except the one which they look to as the only true and sure one. "Is it not because there is no God in Israel, that ye have sent to inquire of Baalzebub, the God of Ekron?" This vital defect in such works should be constantly pointed out to the young reader; and he should be warned that, to realize the picture of noble, disinterested, thorough-going virtue, presented in such and such an instance, it is absolutely necessary to resort to those principles which in these fictions are unnoticed. He should, in short, be reminded that all these "things that are lovely and of good report," which have been placed before him, are the genuine fruits of the Holy Land; though the spies who have brought them bring also an evil report of that land, and would persuade us to remain wandering in the wilderness.

The student of history, also, should be on his guard against the indirect influence likely to be exercised on his opinions. On this point I take the liberty of quoting a passage from my *Lectures on Political Economy*:—

"An injudicious reader of history is liable to be misled by the circumstance, that historians and travelers occupy themselves principally (as is natural) with the relation of whatever is *remarkable*, and different from what commonly takes place in their own time or country. They do not dwell on the ordinary transactions of human life, (which are precisely what furnish the data on which political economy proceeds,) but on every thing that appears an exception to general rules, and in any way such as could not have been anticipated. The sort of information which the political economist wants is introduced, for the most part, only incidentally and obliquely; and is to be collected, imperfectly, from scattered allusions. So that if you will give a rapid glance, for instance, at the history of these islands, from the time of the Norman conquest to the present day, you will find that the differences between the two states of the country, in most of the points with which our science is conversant, are but very imperfectly accounted for in the main outline of the narrative.

"If it were possible that we could have a full report of the common business and common conversation, in the markets, the shops, and the wharfs of Athens and Piræus, for a single day, it would probable throw more light on the state of things in Greece at that time, in all that political economy is most concerned with, than all the histories that are extant put together.

"There is a danger, therefore, that the mind of the student, who proceeds in the manner I have described, may have been even drawn off from the class of facts which are, for the purpose in question, most important to be attended to.

"For, it should be observed that in all studies there is a danger to be guarded against, which Bacon, with his usual acuteness, has pointed out: that most men are so anxious to make or seek for some application of what they have been learning, as not unfrequently to apply it improperly, by endeavoring, lest their knowledge should lie by them idle, to bring it to bear on some question to which it is irrelevant; like Horace's painter, who, being skillful in drawing a cypress, was for introducing one into the picture of a shipwreck. Bacon complains of this tendency among the logicians and metaphysicians of his day, who introduced an absurd and pernicious application of the studies in which they had been conversant, into natural philosophy: 'Artis sæpe ineptus fit usus, *ne sit nullus*.' But the same danger besets those conversant in every other study likewise, (political economy of course not excepted,) that may from time to time have occupied a large share of each man's attention. He is tempted to seek for a solution of every question on every subject, by a reference to his own favorite science or branch of knowledge; like a schoolboy when first intrusted with a knife, who is for trying its edge on every thing that comes in his way.

"Now in reference to the point immediately before us, he who is well read in history and in travels should be warned of the danger (the more on account of the real high importance of such knowledge) of misapplying it,—of supposing that because political economy is conversant with *human transactions*, and he is acquainted with so much greater an amount of *human transactions* than the generality of men, he must have an advantage over them in precisely the same degree, in discussing questions of political economy. Undoubtedly he *has* a great advantage, if he is careful to keep in view the true principles of the science; but otherwise he may even labor under a *dis*-advantage, by forgetting that (as I just now observed) the kind of transactions which are made most prominent and occupy the chief space, in the works of historians and travelers, are usually not those of every-day life, with which political economy is conversant. It is in the same way that an accurate *military survey* of any district, or a series of sketches accompanying a *picturesque* tour through it, may even serve to mislead one who is seeking for a knowledge of its *agricultural* condition, if he does not keep in mind the different objects which different kinds of survey have in view.

"Geologists, when commissioning their friends to procure them from any foreign country such specimens as may convey an idea of its geological character, are accustomed to warn them against sending over collections of *curiosities*—*i. e.* specimens of spars, stalactites, &c., which are accounted, in that country, curious, from being *rarities*, and which consequently convey no correct notion of its general features. What they want is, specimens of the *commonest* strata,—the stones with which the roads are mended, and the houses built, &c. And some fragments of these, which in that country are accounted mere rubbish, they sometimes, with much satisfaction, find *casually adhering* to the specimens sent them as curiosities, and constituting, for their object, the most important part of the collection. Histories are in general, to the political economist, what such collections are to the geologist. The casual allusions to common, and what are considered insignificant matters, conveying to him the most valuable information.

"An injudicious study of history, then, may even prove a hindrance instead of a help to the forming of right views of political economy. For not only are many of the transactions which are, in the historian's view, the most important, such as are the least important to the political economist, but also a great proportion of them consists of what are in reality the greatest *impediments* to the progress of a society in wealth: viz., wars, revolutions, and disturbances of every kind. It is not in consequence of these, but in spite of them, that society has made the progress which in fact it has made. So that in taking such a survey as history furnishes of the course of events, for instance, for the last eight hundred years, (the period I just now alluded to,) not only do we find little mention of the causes which have so greatly increased national wealth during that period, but what we chiefly do read of is, the *counteracting* causes; especially the wars which have been raging from time to time, to the destruction of capital, and the hindrance of improvement. Now, if a ship had performed a voyage of eight hundred leagues, and the register of it contained an account chiefly of the contrary winds and currents, and made little mention of favorable gales, we might well be at a loss to understand how she reached her destination; and might even be led into the mistake of supposing that the contrary winds had forwarded her in her course. Yet such is history!"

In reference to the study of history, I have elsewhere remarked upon the importance, among the intellectual qualifications for such a study, of a vivid imagination,—a faculty which, consequently, a skillful narrator must himself possess, and to which he must be able to furnish excitement in others. Some may, per haps, be startled at this remark, who have been accustomed to consider imagination as having no other office than to *feign* and to falsify. Every faculty is liable to abuse and misdirection, and imagination among the rest; but it is a mistake to suppose that it necessarily tends to pervert the truth of history, and to mislead the judgment. On the contrary, our view of any transaction, especially one that is remote in time or place, will necessarily be imperfect, generally incorrect, unless it embrace something more than the bare outline of the occurrences,—unless we have before the mind a lively idea of the scenes in which the events took place, the habits of thought and of feeling of the actors, and all the circumstances connected with the transaction; unless, in short, we can in a considerable degree transport ourselves out of our own age, and country, and persons, and imagine ourselves the agents or spectators. It is from consideration of all these circumstances that we are enabled to form a right judgment as to the facts which history records, and to derive instruction from it. What we imagine may indeed be merely *imaginary*, that is, unreal; but it may again be what actually does or did exist. To say that imagination, if not regulated by sound judgment and sufficient knowledge, may chance to convey to us false impressions of past events, is only to say that man is fallible. But such false impressions are even *much the more* likely to take possession of those whose imagination is feeble or uncultivated. They are apt to imagine the things, persons, times, countries, &c., which they read of, as much less different from what they see around them than is really the case.

The practical importance of such an exercise of imagination to a full, and clear, and consequently profitable view of the transactions related in history, can hardly be over-estimated. In respect of the very earliest of all human transactions, it is matter of common remark how prone many are to regard with mingled wonder, contempt, and indignation, the transgression of our first parents; as if they were not a fair sample of the human race; as if any of us would not, if he had been placed in precisely the same circumstances, have acted as they did. The Corinthians, probably, had perused with the same barren wonder the history of the backslidings of the Israelites; and needed that Paul should remind them, that these things were written for their example and admonition. And all, in almost every portion of history they read, have need of a corresponding warning, to endeavor to fancy themselves the persons they read of, that they may recognize in the accounts of past times the portraiture of our own. From not putting ourselves in the place of the persons living in past times, and entering fully into all their feelings, we are apt to forget how probable many things might appear, which we know did not take place; and to regard as perfectly chimerical, expectations which we know were not realized, but which, had we lived in those times, we should doubtless have entertained; and to imagine that there was no *danger* of those evils which, were, in fact, escaped. We are apt also to make too little allowances for prejudices and associations of ideas, which no longer exist precisely in the same form among ourselves, but which, perhaps, are not more at variance with right reason than others with which ourselves are infected.

"Studies serve for delight, for ornament, and for ability."

We should, then, cultivate, not only the cornfields of our minds, but the pleasure-grounds also. Every faculty and every study, however worthless they may be, when not employed in the service of God,—however debased and polluted when devoted to the service of sin,—become ennobled and sanctified when directed, by one whose constraining motive is the love of Christ, towards a good object. Let not the Christian, then, think "scorn of the pleasant land." That land is the field of ancient and modern literature—of philosophy, in almost all its departments—of the arts of reasoning and persuasion. Every part of it may be cultivated with advantage, as the Land of Canaan when bestowed upon God's peculiar people. They were not commanded to let it lie waste, as incurably polluted by the abominations of its first inhabitants; but to cultivate it, and dwell in it, living in obedience to the divine laws, and dedicating its choicest fruits to the Lord their God.

DIFFERENT ASPECTS OF A LIBERAL EDUCATION.

LORD CHESTERFIELD'S LETTERS TO HIS SON.

Philip Dormer Stanhope, fourth Earl of Chesterfield, was born in London, September 22, 1694. Having graduated at Cambridge, he made the tour of Europe in 1714. In 1715 he was appointed a gentleman of the bed-chamber of the Prince of Wales, and was elected to Parliament, where he signalized his entrance by his graceful elocution. On the death of his father, in 1726, he passed into the House of Lords. In 1728 he was made Special Ambassador to Holland; and, on his return, George II. appointed him Lord Steward of the Household; and, in 1745, he was made Lord Lieutenant of Ireland, where he inaugurated a policy of conciliation which made his administration very popular. He accepted the office of Principal Secretary of State in April. 1746, which he resigned in 1748.

Lord Chesterfield was intimate with Pope, Swift, Voltaire, Montesquieu, and other literary men of his time. His intercourse with Dr. Johnson, which was at no time intimate, was abruptly closed by the well-known indignant letter from the lexicographer, on the appearance of a patronizing notice of his great work in the world, of November 22, 1754, and which has outlived much of the literature of that day.

> "Seven years, my lord, have now passed since I waited in your outward room, or was repulsed from your door; during which time I have been pushing on my work through difficulties, of which it is useless to complain, and have brought it at last to the verge of publication, without one act of assistance, one word of encouragement, or one smile of favor. . . . The notice which you have been pleased to take of my labors, had it been early, had been kind; but it has been delayed till I am indifferent, and cannot enjoy it till I am solitary, and cannot impart it; till I am known, and do not want it. . . . Having carried on my work thus far with so little obligation to any favorer of learning, I shall not be disappointed, though I should conclude it, if less be possible with life."

Chesterfield's reputation as an author is founded chiefly on his *Letters to his Son*, which appeared in 1774, after his death; and, although written for a special purpose, and without reference to publication, and published without reference to his ultimate judgment as to special suggestions, they have been widely read, and have exerted a wide and deep influence on the aims and details of liberal culture.

HIS OWN EDUCATION AND TRAINING.

His mother, daughter of George Savile, Marquis of Hallifax, died while this son was quite young, and his education, through a neglect of the father, devolved, mainly, upon his grandmother, Lady Halifax, a woman of much sense and sensibility. Her house was the resort of the leading politicians and best company of the city, whose conversation decided the tastes of the youth, who was a nice observer of men and manners. And he owed much to a casual remark of Lord Galway, who, observing in him a strong inclination to political life, but at the same time an unconquerable taste for pleasure, with some tincture of laziness, remarked: "If you intend to be a man of business, you must be an early riser. In the distinguished posts your parts, rank, and fortune will entitle you to fill, you will be liable to have visitors at every hour of the day, and unless you will rise early, you will never have any leisure to yourself." He took the hint, and acted upon it through life.

His early instruction, till he was eighteen, was by private tutors, and his desire to excel was the spur of youthful exertion both in books and plays. In a letter to his son (then eleven), he says: 'I should have been ashamed if any boy of that age had learned his book better, or played at any game better than I did; I should not have rested a moment till I had got before him.' In 1712 (then in his eighteenth year) he entered Trinity Hall, Cambridge. In a letter to his French teacher in London he writes: 'I have passed the last week at the Bishop of Ely's, who lives fifteen miles off, and have seen more of the country than I had seen in all my life, and which is very agreeable in this neighborhood. I continue constant at my studies, which as yet are but Latin and Greek, but I shall soon commence civil law, philosophy, and mathematics. I find this college infinitely the best in the whole university, for it is the smallest, and is filled with lawyers, who have been in the world and understand life. We have but one clergyman, who is the only man in the college who gets drunk.' While at the university he paid particular attention to the great masters of oratory. In a letter to his son, he refers to this subject: 'Whenever I read pieces of eloquence, whether ancient or modern, I used to write down the shining passages, and then translate them as well and elegantly as I could; if in Latin or French, into English; if English, into French. This, which I practiced for some years, not only improved and formed my style, but imprinted in my mind and memory the best thoughts of the best authors.'

In 1714 he sets out on the grand tour of Holland, France, and Italy—and as he was without a tutor, he was left to his own judgment, which proved in some respects excellent, and in others perilous. His love of shining, and his avowed principle of observing and copying the habits and manners of polite society, led him into gambling, 'which,' he remarks in a letter to his son: 'far from adorning my character, has, I am conscious, been a great blemish to it.' His introduction to the world of men and women is thus described:

> At nineteen I left the University of Cambridge, where I was an absolute pedant: when I talked my best, I quoted Horace; when I aimed at being facetious, I quoted Martial; and when I had a mind to be a fine gentleman, I talked Ovid. I was convinced that none but the ancients had common sense; that the classics contained everything that was either necessary, useful, or ornamental to men; and I was not without thought of wearing the *toga virilis* of the Romans, instead of the vulgar and illiberal dress of the moderns. With these excellent notions, I went first to the Hague, where, by the help of several letters of recommendation, I was soon introduced into all the best company; and where I very soon discovered that I was totally mistaken in almost every one notion I had entertained. Fortunately, I had a strong desire to please (the mixed result of good-nature, and a vanity by no means blamable), and was sensible that I had nothing but the desire. I therefore resolved, if possible, to acquire the means too. I studied attentively and minutely the

dress, the air, the manner, the address, and the turn of conversation, of all those whom I found to be the people in fashion and most generally allowed to please. I imitated them as well as I could; if I heard that one man was reckoned remarkably genteel, I carefully watched his dress, motions, and attitudes, and formed my own upon them. When I heard of another, whose conversation was agreeable and engaging, I listened and attended to the turn of it. I addressed myself, though '*de très mauvaise grace*,' to all the most fashionable fine ladies; confessed and laughed with them at my own awkwardness and rawness, recommending myself as an object for them to try their skill in forming. By these means and with a passionate desire for pleasing everybody, I came by degrees to please some; and I can assure you, that whatever little figure I have made in the world has been much more owing to that passionate desire I had of pleasing universally, than to any intrinsic merit, or sound knowledge, I might ever have been master of. My passion for pleasing was so strong (and I am very glad it was so), that I own to you fairly, I wished to make every woman I saw in love with me, and every man I met with admire me. Without this passion for the object, I should never have been so attentive to the means; and I own I cannot conceive how it is possible for any man of good nature and good sense to be without this passion. Does not good-nature incline us to please all those we converse with, of whatever rank or station they may be? And does not good-sense and common observation show of what infinite use it is to please? 'Oh, but one may please by the good qualities of the heart and the knowledge of the head, without the fashionable air, address, and manner, which is mere tinsel.' I deny it. A man may be esteemed and respected, but I defy him to please without them. Moreover, at your age, I would not have contented myself with barely pleasing; I wanted to shine, and to distinguish myself in the world, as a man of fashion and gallantry, as well as business. And that ambition, or vanity, call it what you please, was a right one; it hurt nobody, and made me exert whatever talents I had. It is the spring of a thousand right and good things.

To these extracts from Lord Chesterfield's own letters, written to encourage the efforts of his son to acquire the art of pleasing in society, we add passages from the graceful and, in the main, just criticisms of the eminent French essayist, C. A. Sainte-Beuve: *

In 1744, when he was only fifty years of age, his political ambition seemed, in part, to have died out, and the indifferent state of his health left him to choose a private life. And then the object of his secret ideal and his real ambition we know now. Before his marriage, he had, about the year 1732, by a French lady (Mdme. du Bouchet), whom he met in Holland, a natural son, to whom he was tenderly attached. He wrote to this son, in all sincerity, "From the first day of your life, the dearest object of mine has been to make you as perfect as the weakness of human nature will allow." Towards the education of this son all his wishes, all his affectionate and worldly predilections tended. And whether Viceroy of Ireland, or Secretary of State in London, he found time to write long letters, full of minute details, to him, to instruct him in small matters, and to perfect him in mind and manner

The Chesterfield, then, that we love especially to study, is the man of wit and experience, who knew all the affairs, and passed through all the phases of political and public life only to find out its smallest resources, and to tell us the last mot; he who, from his youth, was the friend of Pope and Bolingbroke, the introducer into England of Montesquieu and Voltaire, the correspondent of Fontenelle and Mdme. de Tencin; he whom the Academy of Inscriptions placed among its members, who united the wit of the two nations, and who, in more than one intellectual essay, but particularly in his letters to his son, shows himself to us as a moralist, as amiable as he is consummate, and one of the masters of life. It is the Rochefoucald of England of whom we speak. Montesquieu, after the publication of "*L'Esprit des Lois*," wrote to the Abbé de Guasco, who was then in England, "Tell my Lord Chesterfield that nothing is so flattering to me as his approbation; but that, though he is reading my work for the third time, he will only be in a better position to point out to me what wants correcting and rectifying in it; nothing could be more instructive to me than his observations and his *critique*." It was Chesterfield who, speaking to Montesquieu, one day, of the readiness of the French for revolutions, and their impatience at slow reforms, spoke this sentence, which is a *résumé* of our whole history: "You French know how to make barricades, but you never raise barriers."

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* Prefixed to a late London edition of Lord Chesterfield's *Letters, Sentences, and Maxims*, in the *Bayard Series of Pleasure Books of Literature*, by Sampson Low, Son & Marston. We can most heartily commend this beautifully printed volume as containing all there is truly valuable in the four volumes of letters.

The letters begin with the A B C of education and instruction. Chesterfield teaches his son, in French, the rudiments of mythology and history. I do not regret the publication of these first letters. He lets slip some very excellent advice in those early pages. The little Stanhope is no more than eight years old when his father suits a little rhetoric to his juvenile understanding, and tries to show him how to use good language, and to express himself well. He especially recommends to him *attention* in all that he does, and he gives the word its full value. "It is attention alone," he says, "which fixes objects in the memory. There is no surer mark of a mean and meagre intellect in the world than inattention. All that is worth the trouble of doing at all, deserves to be done well, and nothing can be well done without attention." This precept he incessantly repeats, and varies the application of it as his pupil grows, and is in a condition to comprehend it to its fullest extent. Whether pleasure or study, everything one does must be well done, done entirely, and at its proper time, without allowing any distraction to intervene. "When you read Horace, pay attention to the accuracy of his thoughts, to the elegance of his diction, and to the beauty of his poetry, and do not think of the '*De Homine et Cive*' of Puffendorf; and when you read Puffendorf, do not think of Mdme. de St. Germain; nor of Puffendorf when you speak to Mdme. de St. Germain." But this strong and easy subjugation of the order of thought to the will only belongs to great or very good intellects. M. Royer-Collard used to say that "what was most wanting in our day, was *respect* in the moral disposition, and *attention* in the intellectual." Lord Chesterfield, in a less grave manner, might have said the same thing. He was not long in finding out what was wanting in this child whom he wished to bring up; whose bringing up was, indeed, the end and aim of his life. "On sounding your character to its very depths," he said to him, "I have not, thank God, discovered any vice of heart or weakness of head, so far; but I have discovered idleness, inattention, and indifference, which are only pardonable in the aged, who, in the decline of life, when health and spirits give way, have a sort of right to that kind of tranquility. But a young man ought to be ambitious to shine and excel." And it is precisely this sacred fire, this lightning, that makes Achilles, the Alexanders, and the Caesars *to be the first in every undertaking*, this motto of noble hearts and of eminent men of all kinds, that nature had primarily neglected to place in the honest but thoroughly mediocre soul of the younger Stanhope: "You appear to want," said his father, "that *vivida vis animi* which excites the majority of young men to please, to strive, and to outdo others." "When I was your age," he says again, "I should have been ashamed for another to know his lesson better or to have been before me in a game, and I should have had no rest till I had regained the advantage." All this little course of education by letters, offers a sort of continuous dramatic interest; we follow the efforts of a fine, distinguished, energetic nature as Lord Chesterfield's was, engaged in a contest with a disposition honest but indolent, with an easy and dilatory temperament, from which it would, at any expense, form a masterpiece accomplished, amiable and original, and with which it only succeeded in making a sort of estimable copy. What sustains and almost touches the reader in this strife, where so much art is used, and where the inevitable counsel is the same beneath all metamorphoses, is the true fatherly affection which animates and inspires the delicate and excellent master, as patient as he is full of vigor, lavish in resources and skill, never discouraged, untiring in sowing elegances and graces on this infertile soil. The young man is placed at the Academy, with M. de la Guérinière (not till 1751, when he was nineteen, too old to profit by such instruction); the morning he devotes to study, and the rest of the time is to be consecrated to the world. "Pleasure is now the last branch of your education," this indulgent father writes; "it will soften and polish your manners, it will incite you to seek, and finally to acquire *graces*." Upon this last point he is exacting, and shows no quarter. *Graces*, he returns continually to them, for without them all effort is vain. "If they are not natural to you, cultivate them," he cries. He indeed speaks confidently; as if, to cultivate graces, it is not necessary to have them already!

The gentle and the frivolous are perpetually mingling in these letters. Marcel, the dancing-master, is very often recommended, Montesquieu no less. The Abbé de Guasco, a sort of toady to Montesquieu, is a useful personage for introductions. "Between you and me," writes Chesterfield, "he has more knowledge than genius; but *a clever man knows how to make use of everything*, and every man is good for something. As to the President de Montesquieu, he is in all respects a precious acquaintance; *he has genius, with the most extensive reading in the world. Drink of this fountain as much as possible.*"

Of authors, those whom Chesterfield particularly recommends at this time, and those whose names occur most frequently in his counsels, are La Rochefoucald and La Bruyère. "If you read some of La Rochefoucald's maxims in the morning, consider them, examine them well, and compare them with the originals you meet in the evening. Read La Bruyère in the morning, and see in the evening if his portraits are correct." But these guides, excellent as they are, have no other use by themselves than that of a map. Without personal observation and experience, they would be useless, and would even be conducive to error, as a map might be if one thought to get from it a complete knowledge of towns and provinces. Better read one man than ten books. "The world is a country that no one has ever known by means of descriptions; each must traverse it in person to be thoroughly initiated into its ways."

Lord Chesterfield intended this beloved son for a diplomatic life; he at first found some difficulties in the way on account of his illegitimacy. To cut short these objections, he sent his son to Parliament; it was the surest method of conquering the scruples of the court. Mr. Stanhope, in his maiden speech, hesitated a moment, and was obliged to have recourse to notes. He did not make a second attempt at speaking in public. It appears that he succeeded better in diplomacy, in those second-rate places where solid merit is sufficient. He filled the post of ambassador extraordinary to the court of Dresden. But his health, always delicate, failed, and his father had the misfortune to see him die before him, when he was scarcely thirty-six years old (1768).

HINTS ON CONVERSATION.

Talk often, but never long; in that case, if you do not please, at least you are sure not to tire your hearers. Pay your own reckoning, but do not treat the whole company; this being one of the very few cases in which people do not care to be treated, every one being freely convinced that he has wherewithal to pay.

Tell stories very seldom, and absolutely never but when they are very apt, and very short. Omit every circumstance that is not material, and beware of digressions To have frequent recourse to narrative, betrays great want of imagination.

Never hold anybody by the button, or the hand, in order to be heard out; for, if people are not willing to hear you, you had much better hold your tongue than them.

Take, rather than give, the tone of the company you are in. If you have parts, you will show them, more or less, upon every subject; and if you have not, you had better talk sillily upon a subject of other people's, than of your own choosing.

Avoid, as much as you can, in mixed companies, argumentative, polemical conversations; which, though they should not, yet certainly do, indispose, for a time, the contesting parties towards each other; and if the controversy grows warm and noisy, endeavor to put an end to it by some genteel levity or joke. I quieted such a conversation hubbub once, by representing to them that, though I was persuaded none there present would repeat, out of company, what passed in it, yet I could not answer for the discretion of the passengers on the street, who must necessarily hear all that was said.

Above all things, and upon all occasions, avoid speaking of yourself, if it be possible. Such is the natural pride and vanity of our hearts, that it perpetually breaks out, even in people of the best parts, in all the various modes and figures of the egotism.

This principle of vanity and pride is so strong in human nature, that it descends even to the lowest objects; and one often sees people angling for praise, when, admitting all they say to be true (which, by the way, it seldom is), no just praise is to be sought. One man affirms that he has rode past an hundred miles in six hours. Probably it is a lie; but supposing it to be true, what then? Why, he is a very good post-boy, that is all. Another asserts, and probably not without oaths, that he has drank six or eight bottles of wine at a sitting. Out of charity, I will believe him a liar; for if I do not, I must think him a beast.

Always look people in the face when you speak to them; the not doing it is thought to imply conscious guilt; besides that, you lose the advantage of observing, by their countenances, what impression your discourse makes upon them. In order to know people's real sentiments, I trust much more to my eyes than to my ears; for they can say whatever they have a mind I should hear; but they can seldom help looking what they have no intention I should know.

Neither retail nor receive scandal, willingly; for though the defamation of others may for the present gratify the malignity or pride of our hearts, cool reflection will draw very disadvantageous conclusions from such a disposition; and in the case of scandal, as in that of robbery, the receiver is always thought as bad as the thief.

SELF-KNOWLEDGE AND JUDGMENT OF OTHERS.

In order to judge of the inside of others, study your own; but men in general are very much alike; and though one has one prevailing passion, and another has another, yet their operations are much the same; and whatever engages or disgusts, pleases or offends you in others, will, *mutatis mutandis*, engage, disgust, please, or offend others in you. Observe, with the utmost attention, all the operations of your own mind, the nature of your passions, and the various motives that determine your will, and you may, in a great degree, know all mankind. For instance, do you find yourself hurt and mortified when another makes you feel his superiority, and your own inferiority, in knowledge, parts, rank, or fortune? You will certainly take great care not to make a person, whose good will, good word, interest, esteem, or friendship you would gain, feel that superiority in you, in case you have it. If disagreeable insinuations, sly sneers, or repeated contradictions tease and irritate you, would you use them where you wished to engage and please? Surely not; and I hope you wish to engage and please almost universally. The temptation of saying a smart or witty thing, or *bon mot*, and the malicious applause with which it is commonly received, has made people who can say them, and, still oftener, people who think they can, but yet cannot, and yet try, more enemies, and implacable ones, too, than any one thing that I know of. When such things, then, shall happen to be said at your expense (as sometimes they certainly will), reflect seriously upon the sentiments, uneasiness, anger, and resentment which they excite in you; and consider whether it can be prudent by the same means to excite the same sentiments in others against you. It is a decided folly to lose a friend for a jest; but, in my mind, it is not a much less degree of folly to make an enemy of an indifferent and neutral person for the sake of a *bon mot*.

STUDIES AND CONDUCT.

SUGGESTIONS BY MEN EMINENT IN LETTERS AND AFFAIRS.

LETTERS OF WILLIAM PITT (EARL OF CHATHAM) TO HIS NEPHEW, THOMAS PITT (LORD CAMELFORD), WRITTEN 1751–71

WILLIAM PITT, the Great Commoner of England, as he was generally spoken of until this honorably won designation was lost in the less characteristic title of Earl of Chatham (conferred, 1766), was born at Boconnoc, November 15, 1708. He was educated at Eton, whence he went, as a gentleman commoner, to Trinity College, Oxford. From ill health, he left the university without taking a degree, and made a tour through France and Italy. On his return he obtained a cornetcy in the Blues, and entered Parliament in January, 1735, as one of the representatives of the borough of Old Sarum, which was the property of his family. On this field he won the reputation as an orator and statesman, which, to the American as well as the English mind, is the goal and stimulus of the highest talents, properly trained, worthily directed, and successfully rewarded. His death (May 11, 1777, its fatal stroke April 7) in the House of Lords, after one of his outbursts of patriotic eloquence, has passed into the keeping of painting as well as of history.

The following series of letters were addressed by their author to his nephew, Thomas Pitt, the only son of Thomas Pitt (the Earl of Chatham's eldest brother), of Boconnoc, in the county of Cornwall. He was born in March, 1737, and died in Florence in 1793. He sat in several parliaments, for the borough of Old Sarum, was a lord of the Admiralty in 1763, and created Lord Camelford in 1783. He was married to Anne, daughter of Pinkney Wilkinson. Their only son was killed in a duel in 1804, and their only daughter was married, in 1792, to William Lord Grenville. The letters coming, by this marriage, into the possession of Lord Grenville, were first published by him in 1804, with a Dedication to the Rt. Hon. William Pitt, 'whose career teaches how great talents may be most successfully cultivated, and to what objects they may most honorably be directed.'

On their first publication, the Edinburgh Review (vol. iv.) justly observed: 'In every line of these interesting relics, we discover proof that Lord Chatham was as amiable in private life as the annals of the Old and New World proclaim him to have been transcendently great in the management of affairs.'

The original edition (1804) was introduced by Lord Grenville with the following

Preface.

The following letters were addressed by the late Lord Chatham to his nephew, Mr. Pitt (afterwards Lord Camelford), then at Cambridge. They are few in number, written for the private use of an individual during a short period of time, and containing only such detached observations on the extensive subjects to which they relate, as occasion might happen to suggest, in the course of familiar correspondence. Yet even these imperfect remains will, undoubtedly, be received by the public with no common interest, as well from their own intrinsic value, as from the picture which they display of the character of their author. The editor's wish to do honor to the memory, both of the person by whom they were written and of him to whom they were addressed, would alone have rendered him desirous of making these papers public. But he feels a much higher motive, in the hope of promoting by such a publication the inseparable interests of learning, virtue, and religion. By the writers of that school whose philosophy consists in the degradation of virtue, it has often been triumphantly declared, that no excellence of character can stand the test of close observation: that no man is a hero to his domestic servants, or to his familiar friends. How much more just, as well as more amiable and dignified, is the opposite sentiment, delivered to us in the words of Plutarch, and illustrated throughout all his writings! "Real virtue," says that inimitable moralist, in his Life of Pericles, "is most loved where it is most nearly seen: and no respect which it commands from strangers, can equal the never ceasing admiration it excites in the daily intercourse of domestic life."

The following correspondence, imperfect as it is (and who will not lament that many more such letters are not preserved?), exhibits a great orator, statesman and patriot, in one of the most interesting relations of private society. Not as in the cabinet or the senate, enforcing, by a vigorous and commanding eloquence, those councils to which his country owed her preeminence and glory; but implanting with parental kindness, into the mind of an ingenious youth, seeds of wisdom and virtue, which ripened into full maturity in the character of a most accomplished man: directing him to the acquisition of knowledge, as the best instrument of action; teaching him, by the cultivation of his reason, to strengthen and establish in his heart those principles of moral rectitude which were congenial to it; and, above all, exhorting him to regulate the whole conduct of his life by the predominant influence of gratitude and obedience to God, as the only sure groundwork of every human duty.

What parent, anxious for the character and success of a son, born to any liberal station in this great and free country, would not, in all that related to his education, gladly have resorted to the advice of such a man? What youthful spirit, animated by any desire of future excellence, and looking for the gratification of that desire in the pursuits of honorable ambition, or in the consciousness of an upright, active, and useful life, would not embrace with transport any opportunity of listening on such a subject to the lessons of Lord Chatham? They are here before him. Not delivered with the authority of a preceptor or a parent, but tempered by the affection of a friend towards a disposition and character well entitled to such regard.

On that disposition and character the editor forbears to enlarge. Their best panegyric will be found in the following pages. Lord Camelford is there described such as Lord Chatham judged him in the first dawn of his youth, and such as he continued to his latest hour. The same suavity of manners and steadiness of principle, the same correctness of judgment and integrity of heart, distinguished him through life; and the same affectionate attachment from those who knew him best, has followed him beyond the grave.

It will be obvious to every reader, on the slightest perusal of the following letters, that they were never intended to comprise a perfect system of education, even for the short portion of time to which they relate. Many points in which they will be found deficient, were undoubtedly supplied by frequent opportunities of personal intercourse, and much was left to the general rules of study established at an English university. Still less, therefore, should the temporary advice addressed to an individual, whose previous education had labored under some disadvantage, be understood as a general dissuasive from the cultivation of Grecian literature. The sentiments of Lord Chatham were in direct opposition to any such opinion. The manner in which, even in these letters, he speaks of the first of poets, and the greatest of orators: and the stress which he lays on the benefits to be derived from their immortal works, could leave no doubt of his judgment on this important point. That judgment was afterwards most unequivocally manifested, when he was called upon to consider the question with a still higher interest, not only as a friend and guardian, but also as a father.

"I call that," says Milton, "a complete and generous education, which fits a man to perform justly, skilfully, and magnanimously, all the offices, both public and private, of peace and war." This is the purpose to which all knowledge is subordinate; the test of all intellectual and moral excellence. It is the end to which the lessons of Lord Chatham are uniformly directed. May they contribute to promote and encourage its pursuit! Recommended, as they must be, to the heart of every reader, by their warmth of sentiment and eloquence of language; deriving additional weight from the affectionate interest by which they were dictated; and most of all, enforced by the influence of his great example, and the authority of his venerable name.

LETTER I.

September, 1751.

MY DEAR CHILD,—I am extremely pleased with your translation, now it is written over fair. It is very close to the sense of the original, and done, in many places, with much spirit, as well as the numbers not lame or rough. However, an attention to Mr. Pope's numbers will make you avoid some ill sounds, and hobbling of the verse, by only transposing a word or two, in many instances. I have, upon reading the Eclogue over again, altered the third, fourth, and fifth lines, in order to bring them nearer to the Latin, as well as to render some beauty which is contained in the repetition of words in tender passages. You give me great pleasure, my dear child, in the progress you have made. I will recommend to Mr. Leech to carry you quite through Virgil's Æneid, from beginning to ending. Pray show him this letter, with my service to him, and thanks for his care of you. For English poetry, I recommend Pope's translation of Homer, and Dryden's Fables in particular. I am not sure if they are not called Tales instead of Fables. Your cousin, whom, I am sure, you can overtake if you will, has read Virgil's Æneid quite through, and much of Horace's Epistles. Terence's plays I would also desire Mr. Leech to make you perfect master of. Your cousin has read them all. Go on, my dear, and you will at least equal him. You are so good that I have nothing to wish but that you may be directed to proper books; and I trust to your spirit, and desire to be praised for things that deserve praise, for the figure you will hereafter make. God bless you, my dear child.

Your most affectionate Uncle,

WILLIAM PITT.

LETTER II.

BATH, *Oct.* 12, 1751.

MY DEAR NEPHEW,—As I have been moving about from place to place, your letter reached me here, at Bath, but very lately, after making a considerable circuit to find me. I should have otherwise, my dear child, returned you thanks for the very great pleasure you have given me, long before now. The very good account you give me of your studies, and that delivered in very good Latin, for your time, has filled me with the highest expectation of your future improvements. I see the foundations so well laid, that I do not make the least doubt but you will become a perfect good scholar; and have the pleasure and applause that will attend the several advantages hereafter, in the future course of your life, that you can only acquire now by your emulation and noble labors in the pursuit of learning, and of every acquirement that is to make you superior to other gentlemen. I rejoice to hear that you have begun Homer's Iliad, and have made so great a progress in Virgil. I hope you taste and love those authors particularly. You cannot read them too that because political economy is conversant with *human transactions*, and he is acquainted with so much greater an amount of *human transactions* than the generality of men, he must have an advantage over them in precisely the same degree, in discussing questions of political economy. Undoubtedly he *has* a great advantage, if he is careful to keep in view the true principles of the science; but otherwise he may even labor under a *dis*-advantage, by forgetting that (as I just now observed) the kind of transactions which are made most prominent and occupy the chief space, in the works of historians and travelers, are usually not those of every-day life, with which political economy is conversant. It is in the same way that an accurate *military survey* of any district, or a series of sketches accompanying a *picturesque* tour through it, may even serve to mislead one who is seeking for a knowledge of its *agricultural* condition, if he does not keep in mind the different objects which different kinds of survey have in view.

"Geologists, when commissioning their friends to procure them from any foreign country such specimens as may convey an idea of its geological character, are accustomed to warn them against sending over collections of *curiosities*—*i. e.* specimens of spars, stalactites, &c., which are accounted, in that country, curious, from being *rarities*, and which consequently convey no correct notion of its general features. What they want is, specimens of the *commonest* strata,—the stones with which the roads are mended, and the houses built, &c. And some fragments of these, which in that country are accounted mere rubbish, they sometimes, with much satisfaction, find *casually adhering* to the specimens sent them as curiosities, and constituting, for their object, the most important part of the collection. Histories are in general, to the political economist, what such collections are to the geologist. The casual allusions to common, and what are considered insignificant matters, conveying to him the most valuable information.

"An injudicious study of history, then, may even prove a hindrance instead of a help to the forming of right views of political economy. For not only are many of the transactions which are, in the historian's view, the most important, such as are the least important to the political economist, but also a great proportion of them consists of what are in reality the greatest *impediments* to the progress of a society in wealth: viz., wars, revolutions, and disturbances of every kind. It is not in consequence of these, but in spite of them, that society has made the progress which in fact it has made. So that in taking such a survey as history furnishes of the course of events, for instance, for the last eight hundred years, (the period I just now alluded to,) not only do we find little mention of the causes which have so greatly increased national wealth during that period, but what we chiefly do read of is, the *counteracting* causes; especially the wars which have been raging from time to time, to the destruction of capital, and the hindrance of improvement. Now, if a ship had performed a voyage of eight hundred leagues, and the register of it contained an account chiefly of the contrary winds and currents, and made little mention of favorable gales, we might well be at a loss to understand how she reached her destination; and might even be led into the mistake of supposing that the contrary winds had forwarded her in her course. Yet such is history!"

In reference to the study of history, I have elsewhere remarked upon the importance, among the intellectual qualifications for such a study, of a vivid imagination,—a faculty which, consequently, a skillful narrator must himself possess, and to which he must be able to furnish excitement in others. Some may, per haps, be startled at this remark, who have been accustomed to consider imagination as having no other office than to *feign* and to falsify. Every faculty is liable to abuse and misdirection, and imagination among the rest; but it is a mistake to suppose that it necessarily tends to pervert the truth of history, and to mislead the judgment. On the contrary, our view of any transaction, especially one that is remote in time or place, will necessarily be imperfect, generally incorrect, unless it embrace something more than the bare outline of the occurrences,—unless we have before the mind a lively idea of the scenes in which the events took place, the habits of thought and of feeling of the actors, and all the circumstances connected with the transaction; unless, in short, we can in a considerable degree transport ourselves out of our own age, and country, and persons, and imagine ourselves the agents or spectators. It is from consideration of all these circumstances that we are enabled to form a right judgment as to the facts which history records, and to derive instruction from it. What we imagine may indeed be merely *imaginary*, that is, unreal; but it may again be what actually does or did exist. To say that imagination, if not regulated by sound judgment and sufficient knowledge, may chance to convey to us false impressions of past events, is only to say that man is fallible. But such false impressions are even *much the more* likely to take possession of those whose imagination is feeble or uncultivated. They are apt to imagine the things, persons, times, countries, &c., which they read of, as much less different from what they see around them than is really the case.

The practical importance of such an exercise of imagination to a full, and clear, and consequently profitable view of the transactions related in history, can hardly be over-estimated. In respect of the very earliest of all human transactions, it is matter of common remark how prone many are to regard with mingled wonder, contempt, and indignation, the transgression of our first parents; as if they were not a fair sample of the human race; as if any of us would not, if he had been placed in precisely the same circumstances, have acted as they did. The Corinthians, probably, had perused with the same barren wonder the history of the backslidings of the Israelites; and needed that Paul should remind them, that these things were written for their example and admonition. And all, in almost every portion of history they read, have need of a corresponding warning, to endeavor to fancy themselves the persons they read of, that they may recognize in the accounts of past times the portraiture of our own. From not putting ourselves in the place of the persons living in past times, and entering fully into all their feelings, we are apt to forget how probable many things might appear, which we know did not take place; and to regard as perfectly chimerical, expectations which we know were not realized, but which, had we lived in those times, we should doubtless have entertained; and to imagine that there was no *danger* of those evils which, were, in fact, escaped. We are apt also to make too little allowances for prejudices and associations of ideas, which no longer exist precisely in the same form among ourselves, but which, perhaps, are not more at variance with right reason than others with which ourselves are infected.

"*Studies serve for delight, for ornament, and for ability.*"

We should, then, cultivate, not only the cornfields of our minds, but the pleasure-grounds also. Every faculty and every study, however worthless they may be, when not employed in the service of God,—however debased and polluted when devoted to the service of sin,—become ennobled and sanctified when directed, by one whose constraining motive is the love of Christ, towards a good object. Let not the Christian, then, think "scorn of the pleasant land." That land is the field of ancient and modern literature—of philosophy, in almost all its departments—of the arts of reasoning and persuasion. Every part of it may be cultivated with advantage, as the Land of Canaan when bestowed upon God's peculiar people. They were not commanded to let it lie waste, as incurably polluted by the abominations of its first inhabitants; but to cultivate it, and dwell in it, living in obedience to the divine laws, and dedicating its choicest fruits to the Lord their God.

DIFFERENT ASPECTS OF A LIBERAL EDUCATION.

LORD CHESTERFIELD'S LETTERS TO HIS SON.

Philip Dormer Stanhope, fourth Earl of Chesterfield, was born in London, September 22, 1694. Having graduated at Cambridge, he made the tour of Europe in 1714. In 1715 he was appointed a gentleman of the bed-chamber of the Prince of Wales, and was elected to Parliament, where he signalized his entrance by his graceful elocution. On the death of his father, in 1726, he passed into the House of Lords. In 1728 he was made Special Ambassador to Holland; and, on his return, George II. appointed him Lord Steward of the Household; and, in 1745, he was made Lord Lieutenant of Ireland, where he inaugurated a policy of conciliation which made his administration very popular. He accepted the office of Principal Secretary of State in April. 1746, which he resigned in 1748.

Lord Chesterfield was intimate with Pope, Swift, Voltaire, Montesquieu, and other literary men of his time. His intercourse with Dr. Johnson, which was at no time intimate, was abruptly closed by the well-known indignant letter from the lexicographer, on the appearance of a patronizing notice of his great work in the world, of November 22, 1754, and which has outlived much of the literature of that day.

> "Seven years, my lord, have now passed since I waited in your outward room, or was repulsed from your door; during which time I have been pushing on my work through difficulties, of which it is useless to complain, and have brought it at last to the verge of publication, without one act of assistance, one word of encouragement, or one smile of favor. . . . The notice which you have been pleased to take of my labors, had it been early, had been kind; but it has been delayed till I am indifferent, and cannot enjoy it till I am solitary, and cannot impart it; till I am known, and do not want it. . . . Having carried on my work thus far with so little obligation to any favorer of learning, I shall not be disappointed, though I should conclude it, if less be possible with life."

Chesterfield's reputation as an author is founded chiefly on his *Letters to his Son*, which appeared in 1774, after his death; and, although written for a special purpose, and without reference to publication, and published without reference to his ultimate judgment as to special suggestions, they have been widely read, and have exerted a wide and deep influence on the aims and details of liberal culture.

HIS OWN EDUCATION AND TRAINING.

His mother, daughter of George Savile, Marquis of Halifax, died while this son was quite young, and his education, through a neglect of the father, devolved, mainly, upon his grandmother, Lady Halifax, a woman of much sense and sensibility. Her house was the resort of the leading politicians and best company of the city, whose conversation decided the tastes of the youth, who was a nice observer of men and manners. And he owed much to a casual remark of Lord Galway, who, observing in him a strong inclination to political life, but at the same time an unconquerable taste for pleasure, with some tincture of laziness, remarked: "If you intend to be a man of business, you must be an early riser. In the distinguished posts your parts, rank, and fortune will entitle you to fill, you will be liable to have visitors at every hour of the day, and unless you will rise early, you will never have any leisure to yourself." He took the hint, and acted upon it through life.

His early instruction, till he was eighteen, was by private tutors, and his desire to excel was the spur of youthful exertion both in books and plays. In a letter to his son (then eleven), he says: 'I should have been ashamed if any boy of that age had learned his book better, or played at any game better than I did; I should not have rested a moment till I had got before him.' In 1712 (then in his eighteenth year) he entered Trinity Hall, Cambridge. In a letter to his French teacher in London he writes: 'I have passed the last week at the Bishop of Ely's, who lives fifteen miles off, and have seen more of the country than I had seen in all my life, and which is very agreeable in this neighborhood. I continue constant at my studies, which as yet are but Latin and Greek, but I shall soon commence civil law, philosophy, and mathematics. I find this college infinitely the best in the whole university, for it is the smallest, and is filled with lawyers, who have been in the world and understand life. We have but one clergyman, who is the only man in the college who gets drunk.' While at the university he paid particular attention to the great masters of oratory. In a letter to his son, he refers to this subject: 'Whenever I read pieces of eloquence, whether ancient or modern, I used to write down the shining passages, and then translate them as well and elegantly as I could; if in Latin or French, into English; if English, into French. This, which I practiced for some years, not only improved and formed my style, but imprinted in my mind and memory the best thoughts of the best authors.'

In 1714 he sets out on the grand tour of Holland, France, and Italy—and as he was without a tutor, he was left to his own judgment, which proved in some respects excellent, and in others perilous. His love of shining, and his avowed principle of observing and copying the habits and manners of polite society, led him into gambling, 'which,' he remarks in a letter to his son: 'far from adorning my character, has, I am conscious, been a great blemish to it.' His introduction to the world of men and women is thus described:

> At nineteen I left the University of Cambridge, where I was an absolute pedant: when I talked my best, I quoted Horace; when I aimed at being facetious, I quoted Martial; and when I had a mind to be a fine gentleman, I talked Ovid. I was convinced that none but the ancients had common sense; that the classics contained everything that was either necessary, useful, or ornamental to men; and I was not without thought of wearing the *toga virilis* of the Romans, instead of the vulgar and illiberal dress of the moderns. With these excellent notions, I went first to the Hague, where, by the help of several letters of recommendation, I was soon introduced into all the best company; and where I very soon discovered that I was totally mistaken in almost every one notion I had entertained. Fortunately, I had a strong desire to please (the mixed result of good-nature, and a vanity by no means blamable), and was sensible that I had nothing but the desire. I therefore resolved, if possible, to acquire the means too. I studied attentively and minutely the

> dress, the air, the manner, the address, and the turn of conversation, of all those whom I found to be the people in fashion and most generally allowed to please. I imitated them as well as I could; if I heard that one man was reckoned remarkably genteel, I carefully watched his dress, motions, and attitudes, and formed my own upon them. When I heard of another, whose conversation was agreeable and engaging, I listened and attended to the turn of it. I addressed myself, though '*de très mauvaise grace*,' to all the most fashionable fine ladies; confessed and laughed with them at my own awkwardness and rawness, recommending myself as an object for them to try their skill in forming. By these means and with a passionate desire for pleasing everybody, I came by degrees to please some; and I can assure you, that whatever little figure I have made in the world has been much more owing to that passionate desire I had of pleasing universally, than to any intrinsic merit, or sound knowledge, I might ever have been master of. My passion for pleasing was so strong (and I am very glad it was so), that I own to you fairly, I wished to make every woman I saw in love with me, and every man I met with admire me. Without this passion for the object, I should never have been so attentive to the means; and I own I cannot conceive how it is possible for any man of good nature and good sense to be without this passion. Does not good-nature incline us to please all those we converse with, of whatever rank or station they may be? And does not good-sense and common observation show of what infinite use it is to please? 'Oh, but one may please by the good qualities of the heart and the knowledge of the head, without the fashionable air, address, and manner, which is mere tinsel.' I deny it. A man may be esteemed and respected, but I defy him to please without them. Moreover, at your age, I would not have contented myself with barely pleasing; I wanted to shine, and to distinguish myself in the world, as a man of fashion and gallantry, as well as business. And that ambition, or vanity, call it what you please, was a right one; it hurt nobody, and made me exert whatever talents I had. It is the spring of a thousand right and good things.

To these extracts from Lord Chesterfield's own letters, written to encourage the efforts of his son to acquire the art of pleasing in society, we add passages from the graceful and, in the main, just criticisms of the eminent French essayist, C. A. Sainte-Beuve: *

In 1744, when he was only fifty years of age, his political ambition seemed, in part, to have died out, and the indifferent state of his health left him to choose a private life. And then the object of his secret ideal and his real ambition we know now. Before his marriage, he had, about the year 1732, by a French lady (Mdme. du Bouchet), whom he met in Holland, a natural son, to whom he was tenderly attached. He wrote to this son, in all sincerity, "From the first day of your life, the dearest object of mine has been to make you as perfect as the weakness of human nature will allow." Towards the education of this son all his wishes, all his affectionate and worldly predilections tended. And whether Viceroy of Ireland, or Secretary of State in London, he found time to write long letters, full of minute details, to him, to instruct him in small matters, and to perfect him in mind and manner

The Chesterfield, then, that we love especially to study, is the man of wit and experience, who knew all the affairs, and passed through all the phases of political and public life only to find out its smallest resources, and to tell us the last mot; he who, from his youth, was the friend of Pope and Bolingbroke, the introducer into England of Montesquieu and Voltaire, the correspondent of Fontenelle and Mdme. de Tencin; he whom the Academy of Inscriptions placed among its members, who united the wit of the two nations, and who, in more than one intellectual essay, but particularly in his letters to his son, shows himself to us as a moralist, as amiable as he is consummate, and one of the masters of life. It is the Rochefoucauld of England of whom we speak. Montesquieu, after the publication of "*L'Esprit des Lois*," wrote to the Abbé de Guasco, who was then in England, "Tell my Lord Chesterfield that nothing is so flattering to me as his approbation; but that, though he is reading my work for the third time, he will only be in a better position to point out to me what wants correcting and rectifying in it; nothing could be more instructive to me than his observations and his *critique*." It was Chesterfield who, speaking to Montesquieu, one day, of the readiness of the French for revolutions, and their impatience at slow reforms, spoke this sentence, which is a *résumé* of our whole history: "You French know how to make barricades, but you never raise barriers."

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* Prefixed to a late London edition of Lord Chesterfield's *Letters, Sentences, and Maxims*, in the *Bayard Series of Pleasure Books of Literature*, by Sampson Low, Son & Marlton. We can most heartily commend this beautifully printed volume as containing all there is truly valuable in the four volumes of letters.

The letters begin with the A B C of education and instruction. Chesterfield teaches his son, in French, the rudiments of mythology and history. I do not regret the publication of these first letters. He lets slip some very excellent advice in those early pages. The little Stanhope is no more than eight years old when his father suits a little rhetoric to his juvenile understanding, and tries to show him how to use good language, and to express himself well. He especially recommends to him *attention* in all that he does, and he gives the word its full value. "It is attention alone," he says, "which fixes objects in the memory. There is no surer mark of a mean and meagre intellect in the world than inattention. All that is worth the trouble of doing at all, deserves to be done well, and nothing can be well done without attention." This precept he incessantly repeats, and varies the application of it as his pupil grows, and is in a condition to comprehend it to its fullest extent. Whether pleasure or study, everything one does must be well done, done entirely, and at its proper time, without allowing any distraction to intervene. "When you read Horace, pay attention to the accuracy of his thoughts, to the elegance of his diction, and to the beauty of his poetry, and do not think of the '*De Homine et Cive*' of Puffendorf; and when you read Puffendorf, do not think of Mdme. de St. Germain; nor of Puffendorf when you speak to Mdme. de St. Germain." But this strong and easy subjugation of the order of thought to the will only belongs to great or very good intellects. M. Royer-Collard used to say that "what was most wanting in our day, was *respect* in the moral disposition, and *attention* in the intellectual." Lord Chesterfield, in a less grave manner, might have said the same thing. He was not long in finding out what was wanting in this child whom he wished to bring up; whose bringing up was, indeed, the end and aim of his life. "On sounding your character to its very depths," he said to him, "I have not, thank God, discovered any vice of heart or weakness of head, so far; but I have discovered idleness, inattention, and indifference, which are only pardonable in the aged, who, in the decline of life, when health and spirits give way, have a sort of right to that kind of tranquility. But a young man ought to be ambitious to shine and excel." And it is precisely this sacred fire, this lightning, that makes Achilles, the Alexanders, and the Caesars *to be the first in every undertaking*, this motto of noble hearts and of eminent men of all kinds, that nature had primarily neglected to place in the honest but thoroughly mediocre soul of the younger Stanhope: "You appear to want," said his father, "that *vivida vis animi* which excites the majority of young men to please, to strive, and to outdo others." "When I was your age," he says again, "I should have been ashamed for another to know his lesson better or to have been before me in a game, and I should have had no rest till I had regained the advantage." All this little course of education by letters, offers a sort of continuous dramatic interest; we follow the efforts of a fine, distinguished, energetic nature as Lord Chesterfield's was, engaged in a contest with a disposition honest but indolent, with an easy and dilatory temperament, from which it would, at any expense, form a masterpiece accomplished, amiable and original, and with which it only succeeded in making a sort of estimable copy. What sustains and almost touches the reader in this strife, where so much art is used, and where the inevitable counsel is the same beneath all metamorphoses, is the true fatherly affection which animates and inspires the delicate and excellent master, as patient as he is full of vigor, lavish in resources and skill, never discouraged, untiring in sowing elegances and graces on this infertile soil. The young man is placed at the Academy, with M. de la Guérinière (not till 1751, when he was nineteen, too old to profit by such instruction); the morning he devotes to study, and the rest of the time is to be consecrated to the world. "Pleasure is now the last branch of your education," this indulgent father writes; "it will soften and polish your manners, it will incite you to seek, and finally to acquire *graces*." Upon this last point he is exacting, and shows no quarter. *Graces*, he returns continually to them, for without them all effort is vain. "If they are not natural to you, cultivate them," he cries. He indeed speaks confidently; as if, to cultivate graces, it is not necessary to have them already!

The gentle and the frivolous are perpetually mingling in these letters. Marcel, the dancing-master, is very often recommended, Montesquieu no less. The Abbé de Guasco, a sort of toady to Montesquieu, is a useful personage for introductions. "Between you and me," writes Chesterfield, "he has more knowledge than genius; but *a clever man knows how to make use of everything*, and every man is good for something. As to the President de Montesquieu, he is in all respects a precious acquaintance; *he has genius, with the most extensive reading in the world. Drink of this fountain as much as possible.*"

Of authors, those whom Chesterfield particularly recommends at this time, and those whose names occur most frequently in his counsels, are La Rochefoucald and La Bruyère. "If you read some of La Rochefoucald's maxims in the morning, consider them, examine them well, and compare them with the originals you meet in the evening. Read La Bruyère in the morning, and see in the evening if his portraits are correct." But these guides, excellent as they are, have no other use by themselves than that of a map. Without personal observation and experience, they would be useless, and would even be conducive to error, as a map might be if one thought to get from it a complete knowledge of towns and provinces. Better read one man than ten books. "The world is a country that no one has ever known by means of descriptions; each must traverse it in person to be thoroughly initiated into its ways."

Lord Chesterfield intended this beloved son for a diplomatic life; he at first found some difficulties in the way on account of his illegitimacy. To cut short these objections, he sent his son to Parliament; it was the surest method of conquering the scruples of the court. Mr. Stanhope, in his maiden speech, hesitated a moment, and was obliged to have recourse to notes. He did not make a second attempt at speaking in public. It appears that he succeeded better in diplomacy, in those second-rate places where solid merit is sufficient. He filled the post of ambassador extraordinary to the court of Dresden. But his health, always delicate, failed, and his father had the misfortune to see him die before him, when he was scarcely thirty-six years old (1768).

HINTS ON CONVERSATION.

Talk often, but never long; in that case, if you do not please, at least you are sure not to tire your hearers. Pay your own reckoning, but do not treat the whole company; this being one of the very few cases in which people do not care to be treated, every one being freely convinced that he has wherewithal to pay.

Tell stories very seldom, and absolutely never but when they are very apt, and very short. Omit every circumstance that is not material, and beware of digressions To have frequent recourse to narrative, betrays great want of imagination.

Never hold anybody by the button, or the hand, in order to be heard out; for, if people are not willing to hear you, you had much better hold your tongue than them.

Take, rather than give, the tone of the company you are in. If you have parts, you will show them, more or less, upon every subject; and if you have not, you had better talk sillily upon a subject of other people's, than of your own choosing.

Avoid, as much as you can, in mixed companies, argumentative, polemical conversations; which, though they should not, yet certainly do, indispose, for a time, the contesting parties towards each other; and if the controversy grows warm and noisy, endeavor to put an end to it by some genteel levity or joke. I quieted such a conversation hubbub once, by representing to them that, though I was persuaded none there present would repeat, out of company, what passed in it, yet I could not answer for the discretion of the passengers on the street, who must necessarily hear all that was said.

Above all things, and upon all occasions, avoid speaking of yourself, if it be possible. Such is the natural pride and vanity of our hearts, that it perpetually breaks out, even in people of the best parts, in all the various modes and figures of the egotism.

This principle of vanity and pride is so strong in human nature, that it descends even to the lowest objects; and one often sees people angling for praise, when, admitting all they say to be true (which, by the way, it seldom is), no just praise is to be sought. One man affirms that he has rode past an hundred miles in six hours. Probably it is a lie; but supposing it to be true, what then? Why, he is a very good post-boy, that is all. Another asserts, and probably not without oaths, that he has drunk six or eight bottles of wine at a sitting. Out of charity, I will believe him a liar; for if I do not, I must think him a beast.

Always look people in the face when you speak to them; the not doing it is thought to imply conscious guilt; besides that, you lose the advantage of observing, by their countenances, what impression your discourse makes upon them. In order to know people's real sentiments, I trust much more to my eyes than to my ears; for they can say whatever they have a mind I should hear; but they can seldom help looking what they have no intention I should know.

Neither retail nor receive scandal, willingly; for though the defamation of others may for the present gratify the malignity or pride of our hearts, cool reflection will draw very disadvantageous conclusions from such a disposition; and in the case of scandal, as in that of robbery, the receiver is always thought as bad as the thief.

SELF-KNOWLEDGE AND JUDGMENT OF OTHERS.

In order to judge of the inside of others, study your own; but men in general are very much alike; and though one has one prevailing passion, and another has another, yet their operations are much the same; and whatever engages or disgusts, pleases or offends you in others, will, *mutatis mutandis*, engage, disgust, please, or offend others in you. Observe, with the utmost attention, all the operations of your own mind, the nature of your passions, and the various motives that determine your will, and you may, in a great degree, know all mankind. For instance, do you find yourself hurt and mortified when another makes you feel his superiority, and your own inferiority, in knowledge, parts, rank, or fortune? You will certainly take great care not to make a person, whose good will, good word, interest, esteem, or friendship you would gain, feel that superiority in you, in case you have it. If disagreeable insinuations, sly sneers, or repeated contradictions tease and irritate you, would you use them where you wished to engage and please? Surely not; and I hope you wish to engage and please almost universally. The temptation of saying a smart or witty thing, or *bon mot*, and the malicious applause with which it is commonly received, has made people who can say them, and, still oftener, people who think they can, but yet cannot, and yet try, more enemies, and implacable ones, too, than any one thing that I know of. When such things, then, shall happen to be said at your expense (as sometimes they certainly will), reflect seriously upon the sentiments, uneasiness, anger, and resentment which they excite in you; and consider whether it can be prudent by the same means to excite the same sentiments in others against you. It is a decided folly to lose a friend for a jest; but, in my mind, it is not a much less degree of folly to make an enemy of an indifferent and neutral person for the sake of a *bon mot*.

STUDIES AND CONDUCT.

SUGGESTIONS BY MEN EMINENT IN LETTERS AND AFFAIRS.

LETTERS OF WILLIAM PITT (EARL OF CHATHAM) TO HIS NEPHEW, THOMAS PITT (LORD CAMELFORD), WRITTEN 1751–71

WILLIAM PITT, the Great Commoner of England, as he was generally spoken of until this honorably won designation was lost in the less characteristic title of Earl of Chatham (conferred, 1766), was born at Boconnoc, November 15, 1708. He was educated at Eton, whence he went, as a gentleman commoner, to Trinity College, Oxford. From ill health, he left the university without taking a degree, and made a tour through France and Italy. On his return he obtained a cornetcy in the Blues, and entered Parliament in January, 1735, as one of the representatives of the borough of Old Sarum, which was the property of his family. On this field he won the reputation as an orator and statesman, which, to the American as well as the English mind, is the goal and stimulus of the highest talents, properly trained, worthily directed, and successfully rewarded. His death (May 11, 1777, its fatal stroke April 7) in the House of Lords, after one of his outbursts of patriotic eloquence, has passed into the keeping of painting as well as of history.

The following series of letters were addressed by their author to his nephew, Thomas Pitt, the only son of Thomas Pitt (the Earl of Chatham's eldest brother), of Boconnoc, in the county of Cornwall. He was born in March, 1737, and died in Florence in 1793. He sat in several parliaments, for the borough of Old Sarum, was a lord of the Admiralty in 1763, and created Lord Camelford in 1783. He was married to Anne, daughter of Pinkney Wilkinson. Their only son was killed in a duel in 1804, and their only daughter was married, in 1792, to William Lord Grenville. The letters coming, by this marriage, into the possession of Lord Grenville, were first published by him in 1804, with a Dedication to the Rt. Hon. William Pitt, 'whose career teaches how great talents may be most successfully cultivated, and to what objects they may most honorably be directed.'

On their first publication, the Edinburgh Review (vol. iv.) justly observed: 'In every line of these interesting relics, we discover proof that Lord Chatham was as amiable in private life as the annals of the Old and New World proclaim him to have been transcendently great in the management of affairs.'

The original edition (1804) was introduced by Lord Grenville with the following

Preface.

The following letters were addressed by the late Lord Chatham to his nephew, Mr. Pitt (afterwards Lord Camelford), then at Cambridge. They are few in number, written for the private use of an individual during a short period of time, and containing only such detached observations on the extensive subjects to which they relate, as occasion might happen to suggest, in the course of familiar correspondence. Yet even these imperfect remains will, undoubtedly, be received by the public with no common interest, as well from their own intrinsic value, as from the picture which they display of the character of their author. The editor's wish to do honor to the memory, both of the person by whom they were written and of him to whom they were addressed, would alone have rendered him desirous of making these papers public. But he feels a much higher motive, in the hope of promoting by such a publication the inseparable interests of learning, virtue, and religion. By the writers of that school whose philosophy consists in the degradation of virtue, it has often been triumphantly declared, that no excellence of character can stand the test of close observation: that no man is a hero to his domestic servants, or to his familiar friends. How much more just, as well as more amiable and dignified, is the opposite sentiment, delivered to us in the words of Plutarch, and illustrated throughout all his writings! "Real virtue," says that inimitable moralist, in his Life of Pericles, "is most loved where it is most nearly seen: and no respect which it commands from strangers, can equal the never ceasing admiration it excites in the daily intercourse of domestic life."

The following correspondence, imperfect as it is (and who will not lament that many more such letters are not preserved?), exhibits a great orator, statesman and patriot, in one of the most interesting relations of private society. Not as in the cabinet or the senate, enforcing, by a vigorous and commanding eloquence, those councils to which his country owed her preeminence and glory; but implanting with parental kindness, into the mind of an ingenious youth, seeds of wisdom and virtue, which ripened into full maturity in the character of a most accomplished man: directing him to the acquisition of knowledge, as the best instrument of action; teaching him, by the cultivation of his reason, to strengthen and establish in his heart those principles of moral rectitude which were congenial to it; and, above all, exhorting him to regulate the whole conduct of his life by the predominant influence of gratitude and obedience to God, as the only sure groundwork of every human duty.

What parent, anxious for the character and success of a son, born to any liberal station in this great and free country, would not, in all that related to his education, gladly have resorted to the advice of such a man? What youthful spirit, animated by any desire of future excellence, and looking for the gratification of that desire in the pursuits of honorable ambition, or in the consciousness of an upright, active, and useful life, would not embrace with transport any opportunity of listening on such a subject to the lessons of Lord Chatham? They are here before him. Not delivered with the authority of a preceptor or a parent, but tempered by the affection of a friend towards a disposition and character well entitled to such regard.

On that disposition and character the editor forbears to enlarge. Their best panegyric will be found in the following pages. Lord Camelford is there described such as Lord Chatham judged him in the first dawn of his youth, and such as he continued to his latest hour. The same suavity of manners and steadiness of principle, the same correctness of judgment and integrity of heart, distinguished him through life; and the same affectionate attachment from those who knew him best, has followed him beyond the grave.

It will be obvious to every reader, on the slightest perusal of the following letters, that they were never intended to comprise a perfect system of education, even for the short portion of time to which they relate. Many points in which they will be found deficient, were undoubtedly supplied by frequent opportunities of personal intercourse, and much was left to the general rules of study established at an English university. Still less, therefore, should the temporary advice addressed to an individual, whose previous education had labored under some disadvantage, be understood as a general dissuasive from the cultivation of Grecian literature. The sentiments of Lord Chatham were in direct opposition to any such opinion. The manner in which, even in these letters, he speaks of the first of poets, and the greatest of orators: and the stress which he lays on the benefits to be derived from their immortal works, could leave no doubt of his judgment on this important point. That judgment was afterwards most unequivocally manifested, when he was called upon to consider the question with a still higher interest, not only as a friend and guardian, but also as a father.

"I call that," says Milton, "a complete and generous education, which fits a man to perform justly, skilfully, and magnanimously, all the offices, both public and private, of peace and war." This is the purpose to which all knowledge is subordinate; the test of all intellectual and moral excellence. It is the end to which the lessons of Lord Chatham are uniformly directed. May they contribute to promote and encourage its pursuit! Recommended, as they must be, to the heart of every reader, by their warmth of sentiment and eloquence of language; deriving additional weight from the affectionate interest by which they were dictated; and most of all, enforced by the influence of his great example, and the authority of his venerable name.

LETTER I.

September, 1751.

MY DEAR CHILD,—I am extremely pleased with your translation, now it is written over fair. It is very close to the sense of the original, and done, in many places, with much spirit, as well as the numbers not lame or rough. However, an attention to Mr. Pope's numbers will make you avoid some ill sounds, and hobbling of the verse, by only transposing a word or two, in many instances. I have, upon reading the Eclogue over again, altered the third, fourth, and fifth lines, in order to bring them nearer to the Latin, as well as to render some beauty which is contained in the repetition of words in tender passages. You give me great pleasure, my dear child, in the progress you have made. I will recommend to Mr. Leech to carry you quite through Virgil's Æneid, from beginning to ending. Pray show him this letter, with my service to him, and thanks for his care of you. For English poetry, I recommend Pope's translation of Homer, and Dryden's Fables in particular. I am not sure if they are not called Tales instead of Fables. Your cousin, whom, I am sure, you can overtake if you will, has read Virgil's Æneid quite through, and much of Horace's Epistles. Terence's plays I would also desire Mr. Leech to make you perfect master of. Your cousin has read them all. Go on, my dear, and you will at least equal him. You are so good that I have nothing to wish but that you may be directed to proper books; and I trust to your spirit, and desire to be praised for things that deserve praise, for the figure you will hereafter make. God bless you, my dear child.

Your most affectionate Uncle,
WILLIAM PITT.

LETTER II.

BATH, *Oct.* 12, 1751.

MY DEAR NEPHEW,—As I have been moving about from place to place, your letter reached me here, at Bath, but very lately, after making a considerable circuit to find me. I should have otherwise, my dear child, returned you thanks for the very great pleasure you have given me, long before now. The very good account you give me of your studies, and that delivered in very good Latin, for your time, has filled me with the highest expectation of your future improvements. I see the foundations so well laid, that I do not make the least doubt but you will become a perfect good scholar; and have the pleasure and applause that will attend the several advantages hereafter, in the future course of your life, that you can only acquire now by your emulation and noble labors in the pursuit of learning, and of every acquirement that is to make you superior to other gentlemen. I rejoice to hear that you have begun Homer's Iliad, and have made so great a progress in Virgil. I hope you taste and love those authors particularly. You cannot read them too much: they are not only the two greatest poets, but they contain the finest lessons for your age to imbibe: lessons of honor, courage, disinterestedness, love of truth, command of temper, gentleness of behavior, humanity, and, in one word, virtue in its true signification. Go on, my dear nephew, and drink as deep as you can of these divine springs: the pleasure of the draught is equal, at least, to the prodigious advantages of it to the heart and morals. I hope you will drink them, as somebody does in Virgil of another sort of cup: 'Ille impiger hausit spumantem pateram' (Quickly he drained the flowing bowl.) I shall be highly pleased to hear from you, and to know what authors give you most pleasure. I desire my service to Mr. Leech; pray tell him I will write to him soon about your studies.

LETTER III.

BATH, *Jan.* 12, 1754.

MY DEAR NEPHEW,—Your letter from Cambridge affords me many very sensible pleasures: first, that you are at last in a proper place for study and improvement, instead of losing any more of that most precious thing, time, in London; in the next place, that you seem pleased with the particular society you are placed in, and with the gentleman to whose care and instructions you are committed; and, above all, I applaud the sound, right sense and love of virtue which appears through your whole letter. You are already possessed of the true clue to guide you through this dangerous and perplexing part of life's journey, the years of education; and upon which the complexion of all the rest of your days will infallibly depend. I say you have the true clue to guide you in the maxim you lay down in your letter to me, namely, that the use of learning is to render a man more wise and virtuous, not merely to make him more learned. *Macte tua virtute;* "Go on and prosper." Go on, my dear boy, by this golden rule, and you cannot fail to become everything your generous heart prompts you to wish to be, and that mine most affectionately wishes for you. There is but one danger in your way, and that is, perhaps, natural enough to your age—the love of pleasure, or the fear of close application and laborious diligence. With the last, there is nothing you may not conquer; and the first is sure to conquer and enslave whoever does not strenuously and generously resist the first allurements of it, lest, by small indulgences, he fall under the yoke of irresistible habit. Vitanda est improba siren, desidia; ("*Avoid that ugly syren, idleness*"), I desire may be affixed to the curtains of your bed, and to the walls of your chambers. If you do not rise early, you never can make any progress worth talking of. Another rule is, if you do not set apart your hours of reading, and never suffer yourself or any one else to break in upon them, your days will slip through your hands unprofitably and frivolously; unpraised by all you wish to please, and really unenjoyable to yourself. Be assured, whatever you take from pleasure, amusements, or indolence, for these first few years of your life, will repay you a hundred-fold in the pleasures, honors, and advantages of all the remainder of your days. My heart is so full of the most earnest desire that you should do well, that I find my letter has run into some length, which you will, I know, be so good as to excuse. There remains now nothing to trouble you with, but a little plan for the beginning of your studies, which I desire, in a particular manner, may be exactly followed in every title. You are to qualify yourself for the part in society to which your birth and estate call you. You are to be a gentleman of such learning and qualifications as may distinguish you in the service of your country hereafter; not a pedant, who reads only to be called learned, instead of considering learning only as an instrument for action. Give me leave, therefore, my dear nephew, who have gone before you, to point out to you the dangers in your road; to guard you against such things as I experience my own defects to arise from; and, at the same time, if I have had any little successes in the world, to guide you to what I have drawn many helps from. I have not the pleasure of knowing the gentleman who is your tutor, but I dare say he is every way equal to such a charge, which I think no small one. You will communicate this letter to him, and I hope he will be so good as to concur with me, as to the course of study I desire you may begin with; and that such books, and such only, as I have pointed out, may be read. They are as follows: Euclid; a course of Logic; a course of Experimental Philosophy; Locke's Conduct of the Understanding; his Treatise also on the Understanding; his Treatise on Government, and Letters on Toleration. I desire, for the present, no books of poetry but Horace and Virgil; of Horace, the Odes, but above all, the Epistles, and Ars Poetica. These parts, *Nocturna versate manu, versate diurna.* Tully de Officiis, de Amicitia, de Senectute; his Catilinarian Oration and Philippics. Sallust. At leisure hours, an abridgement of the history of England to be run through, in order to settle in the mind a general chronological order and series of principal events and succession of kings; proper books of English history, on the true principles of our happy constitution, shall be pointed out afterwards. Burnett's History of the Reformation, abridged by himself, to be read with great care. Father Paul (*Sarpi's* History, with Notes and Observations by Amelot de la Houssail, London, 1727) on beneficiary matters, in English. A French master, and only Molière's Plays to be read with him, or by yourself, till you have gone through them all. Spectators, especially Mr. Addison's papers, to be read very frequently at broken times in your room. I make it my request that you will forbear* drawing, totally, while you are at Cambridge; and not meddle with Greek, otherwise than to know a little the etymology of words in Latin, or English, or French; nor to meddle with Italian. I hope this little course will soon be run through. I intend it as a general foundation for many things, of infinite utility, to come as soon as this is finished.

LETTER IV.

BATH, *Jan.* 14, 1754.

MY DEAR NEPHEW,—You will hardly have read over one very long letter from me before you are troubled with a second. I intended to have written soon, but I do it the sooner on account of your letter to your aunt, which she transmitted to me here. If anything, my dear boy, could have happened to raise you higher in my esteem, and to endear you more to me, it is the amiable abhorrence you feel for the scene of vice and folly (and of real misery and perdition, under the false notion of pleasure and spirit), which has opened to you at your college, and, at the same time, the manly, brave, generous, and wise resolution and true spirit with which you resisted and repulsed the first attempts upon a mind and heart, I thank God, infinitely too firm and noble, as well as too elegant and enlightened, to be in any danger of yielding to such contemptible and wretched corruptions. You charm me with the description of Mr. Wheeler, and while you say you could adore him, I could adore you for the natural, genuine love of virtue which speaks in all you feel, say, or do. As to your companions, let this be your rule: Cultivate the acquaintance with Mr. Wheeler which you have so fortunately begun; and, in general, be sure to associate with men much older than yourself; scholars, whenever you can; but always with men of decent and honorable lives. As their age and learning, superior both to your own, must necessarily, in good sense, and in the view of acquiring knowledge from them, entitle them to all deference, and submission of your lights to theirs, you will particularly practice that first and greatest rule for pleasing in conversation, as well as for drawing instruction and improvement from the company of one's superior in age and knowledge, namely, to be a patient, attentive, and well-bred hearer, and to answer with modesty; to deliver your own opinions sparingly and with proper diffidence; and if you are forced to desire farther information or explanation on a point, to do it with proper apologies for the trouble you give; or, if obliged to differ, to do it with all possible candor, and an unprejudiced desire to find and ascertain truth, with an entire indifference to the side on which that truth is to be found. There is, likewise, a particular attention required to contradict with good manners; such as, begging pardon, begging leave to doubt, and such like phrases. Pythagoras enjoined his scholars an absolute silence for a long novitiate. I am far from approving such a taciturnity, but I highly recommend the end and intent of Pythagoras' injunction; which is to dedicate the first parts of life more to hear and learn, in order to collect materials out of which to form opinions founded on proper lights, and well examined sound principles, than to be presuming, prompt, and flippant in hazarding one's own slight crude notions of things, and thereby exposing the nakedness and emptiness of the mind, like a house opened to company before it is fitted either with necessaries, or ornaments for their reception and entertainment. And not only will this disgrace follow from such temerity and presumption, but a more serious danger is sure to ensue, that is, the embracing errors for truth, prejudices for principles; and when that is once done (no matter how vainly and weakly), the adhering, perhaps, to false and dangerous notions, only because one has declared for them, and submitting, for life, the understanding and conscience to a yoke of base and servile prejudices, vainly taken up and absolutely retained. This will never be your danger; but I thought it not amiss to offer these reflections to your thoughts. As to your manner of behaving toward these unhappy young gentlemen you describe, let it be manly and easy; decline their parties with civility; retort raillery with raillery, always tempered with good breeding; if they banter your regularity, order, decency, and love of study, banter, in return, their neglect of them; and venture to own frankly, that you came to learn what you can, not to follow what they are pleased to call pleasure. In short, let your external behavior to them be as full of politeness and ease as your inward estimation of them is full of pity, mixed with contempt. I come now to the part of the advice I have to offer you, which most nearly concerns your welfare, and upon which every good and honorable purpose of your life will assuredly turn; I mean the keeping up in your heart the true sentiments of religion. If you are not right towards God, you can never be so towards man; the noblest sentiment of the human breast is here brought to the test. Is gratitude in the number of a man's virtues? If it be, the highest benefactor demands the warmest returns of gratitude, love, and praise: Ingratum qui dixerit, omnia dixit ("*When you have spoken ingratitude, you have spoken everything*"). If a man wants this virtue, where there are infinite obligations to excite and quicken it, he will be likely to want all others toward his fellow creatures, whose utmost gifts are poor compared to those he daily receives at the hands of his never-failing Almighty friend. 'Remember thy Creator in the days of thy youth,' is big with the deepest wisdom; 'the fear of the Lord is the beginning of wisdom; and, an upright heart, that is understanding.' This is eternally true, whether the wits and rakes of Cambridge allow it or not; nay, I must add of this religious wisdom, 'Her ways are ways of pleasantness and all her paths are peace,' whatever your young gentlemen of pleasure may think of a tainted health and battered constitution. Hold fast, therefore, by this sheet-anchor of happiness, religion; you will often want it in the times of most danger, the storms and tempests of life. Cherish true religion as preciously as you will fly with abhorrence and contempt superstition and enthusiasm.* The first is the perfection and glory of the human nature; the two last, the depravation and disgrace of it. Remember, the essence of religion is a heart void of offence towards God and man; not subtle, speculative opinions, but an active vital principle of faith. The words of a heathen were so fine that I must give them to you:

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* Lord Grenville, in a note to the first edition of 1804, remarks

This plan, drawn up for one whose previous education had not been systematic, does not claim to be complete. Lord Chatham had a high appreciation of Grecian literature, and Earl Stanhope, in his life of William Pitt, quotes Bishop Tomline: "It was by Lord Chatham's particular desire that Thucydides was the first Greek book which Mr. Pitt read after he came to college. The only other wish ever expressed by his lordship, relative to Mr. Pitt's studies, was, that I would read Polybius with him."

> Compositum Jus, fasque animi; sanctosque recessus
> Mentis, et inoctum generoso pectis honesto.†

Go on, my dear child, in the admirable dispositions you have toward all that is right and good, and make yourself the love and admiration of the world! I have neither paper nor words to tell you how tenderly I am yours.

LETTER V.

BATH, *Jan.* 24, 1754.

I will lose not a moment before I return my most tender and warm thanks to the most amiable, valuable, and noble-minded of youths, for the infinite pleasure his letter gives me. My dear nephew, what a beautiful thing is genuine goodness, and how lovely does the human mind appear in its native purity (in a nature as happy as yours), before the taints of a corrupted world have touched it! To guard you from the fatal effects of all the dangers that surround and beset youth (and many there are), I thank God, is become my pleasing and very important charge; your own choice, and our nearness in blood, and, still more, a nearer and dearer relation of hearts, which I feel between us, all concur to make it so. I shall seek, then, every occasion, my dear young friend, of being useful to you, by offering you those lights which one must have lived some years in the world to see the full force and extent of, and which the best mind and clearest understanding will suggest imperfectly, in any case, and in the most difficult, delicate, and essential points, perhaps not at all, till experience, that dear-bought instructor, comes to our assistance. What I shall, therefore, make my task (a happy, delightful task, if I prove a safeguard to so much opening virtue), is to be, for some years, what you cannot be to yourself, your experience; experience anticipated, and ready digested for your use. Thus we will endeavor, my dear child, to join the two best seasons of life, to establish your virtue and your happiness upon solid foundations. So much in general. I will now, my dear nephew, say a few things to you upon a matter where you have surprisingly little to learn, considering you have seen nothing but Boconnoc; I mean behavior.

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* Lord Grenville remarks, in a note (1804):

Plutarch, in his Life of Pericles, notices the benefit which that great statesman derived from the study of natural philosophy, as taught by Anaxageras. "The lessons of Anaxageras gave elevation to his soul and sublimity to his eloquence; they diffused over the whole tenor of his life a temperate and majestic grandeur; taught him to raise his thoughts from the works of Nature to the contemplation of that Perfect and Pure Intelligence from which they originate, and instilled into his mind, instead of the dark and fearful superstition of his times, that piety which is confirmed by Reason, and animated by Hope."

† Perseus, Sat. I., thus translated by Dryden:

> A soul where laws both human and divine,
> In practice more than speculation shine;
> A genuine virtue of a vigorous kind,
> Pure in the last recesses of the mind.

Gifford, in his translation of these lines, appends the remark: "These two lines are not only the quintessence of sanctity, but of language. Closeness cramps, and paraphrase enfeebles their sense."

Behavior is of infinite advantage or prejudice to a man, as he happens to have formed it to a graceful, noble, engaging and proper manner, or to a vulgar, coarse, ill-bred, or awkward and ungenteel one. Behavior, though an external thing, which seems rather to belong to the body than to the mind, is certainly founded in considerable virtues: though I have known instances of good men with something very revolting and offensive in their manner of behavior, especially when they have the misfortune to be naturally very awkward and ungenteel; and which their mistaken friends have helped to confirm them in, by telling them they were above such trifles as being genteel, dancing, fencing, riding, and doing all manly exercises, with grace and vigor. As if the body, because inferior, were not a part of the composition of man; and the proper, easy, ready, and graceful use of himself, both in mind and limb, did not go to make up the character of an accomplished man. You are in no danger of falling into this preposterous error; and I had a great pleasure in finding you, when I first saw you in London, so well disposed by nature, and so properly attentive to make yourself genteel in person, and well bred in behavior. I am very glad you have taken a fencing master; that exercise will give you some manly, firm, and graceful attitudes; open your chest, place your head upright, and plant you well upon your legs. As to the use of the sword, it is well to know it; but remember, my dearest nephew, it is a science of defence, and that a sword can never be employed, by the hand of a man of virtue, in any other cause. As to the carriage of your person, be particularly careful, as you are tall and thin, not to get a habit of stooping; nothing has so poor a look; above all things, avoid contracting any peculiar gesticulations of the body, or movements of the muscles of the face. It is rare to see in any one a graceful laughter; it is generally better to smile than to laugh out, especially to contract a habit of laughing at small or no jokes. Sometimes it would be affectation, or worse, mere moroseness, not to laugh heartily, when the truly ridiculous circumstances of an incident, or the true pleasantry and wit of a thing, call for and justify it; but the trick of laughing frivolously is, by all means, to be avoided: Risu inepto, res ineptior nulla est (Nothing is so silly as a silly laugh.)

Now, as to politeness: many have attempted definitions; I believe it is best to be known by description, definition not being able to comprise it. I would, however, venture to call it *benevolence in trifles*, or the preference of others to ourselves in little daily, hourly occurrences in the commerce of life. A better place, a more commodious seat, priority in being helped at table, etc., what is it but sacrificing ourselves in such trifles to the convenience and pleasure of others? And this constitutes true politeness. It is a perpetual attention (by habit it grows easy and natural to us) to the little wants of those we are with, by which we either prevent or remove them. Bowing, ceremonious, formal compliments, stiff civilities, will never be politeness; that must be easy, natural, unstudied, manly, noble. And what will give this but a mind benevolent and perpetually attentive to exert that amiable disposition in trifles toward all you converse and live with? Benevolence in greater matters takes a higher name, and is the queen of virtues. Nothing is so incompatible with politeness as any trick of absence of mind. I would trouble you with a word or two more upon some branches of behavior, which have a more serious moral obligation in them than those of mere politeness, which are equally important in the eye of the world. I mean a proper behavior, adapted to the respective relations we stand in toward the different ranks of superiors, equals, and inferiors. Let your behavior towards superiors in dignity, age, learning, or any distinguished excellence, be full of respect, deference, and modesty. Toward equals, nothing becomes a man so well as well-bred ease, polite freedom, generous frankness, manly spirit, always tempered with gentleness and sweetness of manner, noble sincerity, candor, and openness of heart, qualified and restrained within the bounds of prudence, and ever limited by a grateful regard to secrecy in all things entrusted to it, and an inviolable attachment to your word. To inferiors, gentleness, condescension, and affability is the only dignity. Towards servants, never accustom yourself to rough and passionate language. When they are good, we should consider them as *humiles amici*, as fellow Christians, *ut conservi*; and when they are bad, pity, admonish, and part with them, if incorrigible. On all occasions beware, my dear child, of anger, that demon, that destroyer of our peace.

Ira furor brevis est, animum rege, qui nisi paret
Imperat; hunc frenis, hunc tu compesce catenâ—*

LETTER VI.

BATH, *Feb.* 3, 1754.

Nothing can or ought to give me a higher satisfaction, than the obliging manner in which my dear nephew receives my most sincere and affectionate endeavors to be of use to him. You much overrate the obligation, whatever it be, which youth has to those who have trod the paths of the world before them, for their friendly advice how to avoid the inconveniences, dangers, and evils which they themselves may have run upon for want of such timely warnings, and to seize, cultivate, and carry forward toward perfection, those advantages, graces, virtues, and felicities, which they may have totally missed, or stopped short in the generous pursuit. To lend this helping hand to those who are beginning to tread the slippery way, seems, at best, but an office of common humanity to all; but to withhold it from one we truly love, and whose heart and mind bear every genuine mark of the very soil proper for all the amiable, manly, and generous virtues to take root, and bear their heavenly fruit; inward, conscious peace, fame amongst men, public love, temporal and eternal happiness; to withhold it, I say, in such an instance, would deserve the worst of names. I am greatly pleased, my dear young friend, that you do me the justice to believe I do not mean to impose any yoke of authority upon your understanding and conviction. I wish to warn, admonish, instruct, enlighten, and convince your reason; and so determine your judgment to right things, when you shall be made to see that they are right; not to overbear and impel you to adopt anything before you perceive it to be right or wrong, by the force of authority. I hear, with great pleasure, that Locke lay before you when you last wrote to me; and I like the observation you make from him, that we must use our own reason, not that of another, if we would deal fairly by ourselves, and hope to enjoy a peaceful and contented conscience. This precept is truly worthy of the dignity of rational natures. But here, my dear child, let me offer one distinction to you, and it is of much moment. It is this: Mr. Locke's precept is applicable only to such opinions as regard moral or religious obligations, and which, as such, our own consciences alone can judge and determine for ourselves: matters of mere expediency, that affect neither honor, morality, or religion, were not in that great and wise man's view: such are the usages, forms, manners, modes, proprieties, decorums, and all those numberless ornamental little acquirements, and genteel, well-bred attentions, which constitute a proper, graceful, amiable, and noble behavior. In matters of this kind, I am sure, your own reason, to which I shall always refer you, will at once tell you that you must, at first, make use of the experience of others; in effect, see with their eyes, or not be able to see at all; for the ways of the world, as to its usages and exterior manners, as well as to all things of expediency and prudential considerations, a moment's reflection will convince a mind as right as yours, must necessarily be, to inexperienced youth, with ever so fine natural parts, a *terra incognita*. As you would not, therefore, attempt to form notions of China or Persia but from those who have travelled these countries, and the fidelity and sagacity of whose relations you can trust; so will you as little, I trust, prematurely form notions of your own concerning that usage of the world (as it is called) into which you have not yet travelled, and which must be long studied and practiced before it can be tolerably well known. I can repeat nothing to you of so infinite consequence to your future welfare, as to conjure you not to be hasty in taking up notions and opinions; guard your honest and ingenious mind against this main danger of youth. With regard to all things that appear not to your reason, after due examination, evident duties of honor, morality, or religion (and in all such as do, let your conscience and reason determine your notions and conduct), in all other matters, I say, be slow to form opinions, keep your mind in a candid state of suspense, and open to full conviction when you shall procure it; using, in the meantime, the experience of a friend you can trust, the sincerity of whose advice you will try and prove by your own experience hereafter, when more years will have given it to you. I have been longer upon this head than I hope there was any occasion for; but the great importance of the matter, and my warm wishes for your welfare, figure, and happiness, have drawn it from me. I wish to know if you have a good French master: I must recommend the study of the French language, to speak and write it correctly, as to grammar and orthography, as a matter of the utmost and indispensable use to you, if you would make any figure in the great world. I need say no more to enforce this recommendation: when I get to London, I will send you the best French dictionary. Have you been taught geography and the use of the globes by Mr. Leech? If not, pray take a geography master and learn the use of the globes; it is soon known. I recommend to you to acquire a clear and thorough notion of what is called the solar system, together with the doctrine of comets. I wanted as much, or more, to hear of your private reading at home, as of public lectures, which, I hope, however, you will frequent for example's sake. Pardon this long letter, and keep it by you if you do not hate it.

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* Horace, thus rendered by Francis:

'Anger's a shorter madness of the mind
Subdue the tyrant, and in fetters bind.'

LETTER VII.

BATH, *March* 30, 1754.

MY DEAR NEPHEW,—I am much obliged to you for your kind remembrance and wishes for my health. It is much recovered by the regular fit of gout, of which I am still lame in both feet, and I may hope for better health hereafter in consequence. I have thought it long since we conversed: I waited to be able to give you a better account of my health, and, in part, to leave you time to make advances in your plan of study, of which I am very desirous to hear an account. I desire you will be so good as to let me know particularly, if you have gone through the abridgement of Burnet's History of the Reformation, and the treatise of Father Paul on Benefices; also, how much of Locke you have read. I beg you not to mix any other English reading with what I recommended to you. I propose to save you much time and trouble by pointing out to you such books, in succession, as will carry you the shortest way to the things you must know to fit yourself for the business of the world, and give you the clearer knowledge of them, by keeping them unmixed with superfluous, vain, empty trash. Let me hear, my dear child, of your French also, as well as of those studies which are more properly university studies. I cannot tell you better how truly and tenderly I love you, than by telling you I am most solicitously bent on your doing everything that is right, and laying the foundations of your future happiness and figure in the world, in such a course of improvement as will not fail to make you a better man, while it makes you a more knowing one. Do you rise early? I hope you have already made to yourself the habit of doing it; if not, let me conjure you to acquire it. Remember your friend Horace:

'Et ni
Posces ante diem librum cum lumine; si non
Intendes animum studiis, et rebus honestis,
Invidiâ vel amore vigil torquebere.' *

LETTER VIII.

BATH, *May* 4, 1754.

DEAR NEPHEW,—I use a pen with some difficulty, being still lame in my hand, with the gout. I cannot, however, delay writing this line to you, on the course of English history I propose for you. If you have finished the abridgement of English History and of Burnet's History of the Reformation, I recommend to you next (before any other reading of history) Oldcastle's Remarks on the History of England, by Lord Bolingbroke.† Let me apprise you of one thing before you read them, and that is, that the author has bent some passages to make them invidious parallels to the times he wrote in; therefore, be aware of that, and depend, in general, on finding the truest constitutional doctrines, and that the facts of history, though warped, are nowhere falsified. I also recommend Nathaniel Bacon's Historical and Political Observations;* it is, without exception, the best and most instructive book we have on matters of that kind. They are both to be read with much attention, and twice over; Oldcastle's Remarks to be studied and almost got by heart, for the inimitable beauty of the style, as well as the matter; Bacon for the matter chiefly; the style being uncouth, but the expression forcible and striking. I can write no more, and you will hardly read what is writ.

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* Horace, thus rendered by Francis:

'Unless you light your early lamp, to find
A moral book; unless you form your mind
To nobler studies, you shall forfeit rest,
And love or envy shall disturb your breast.'

† Lord Grenville, in a note on this recommendation, remarks:

"Some early impressions had prepossessed Lord Chatham's mind with a much more favorable opinion of the political writings of Lord Bolingbroke, than he might himself have retained on a more impartial consideration. To a reader of the present day, the 'Remarks on the History of England' would probably appear but ill entitled to the praises which are, in these letters, so liberally bestowed upon them. For himself, at least, the editor may be allowed to say, that their style is, in his judgment, declamatory, diffused, and involved; deficient both in elegance and in precision, and little calculated to satisfy a taste formed, as Lord Chatham's was, on the present models of classic simplicity. Their matter he thinks more substantially defective; the observations which they contain display no depth of thought or extent of knowledge; their reasoning is, for the most part, trite and superficial; while on the accuracy with which the facts themselves are represented, no reliance can safely be placed. The principles and character of their author Lord Chatham himself condemns, with just reprobation. And when, in addition to this general censure, he admits that in these writings the truth of history is occasionally warped, and its application distorted for party purposes, what farther notice can be wanted of the caution with which such a book must always be regarded?"

LETTER IX.

ASTROP WELLS, *Sept.* 5, 1754.

MY DEAR NEPHEW,—I have been a long time without conversing with you, and thanking you for the pleasure of your last letter. You may possibly be about to return to the seat of learning on the banks of the Cam; but I will not defer discoursing to you on literary matters till you leave Cornwall, not doubting but you are mindful of the muses amidst the very savage rocks and moors, and yet more savage natives, of the ancient and respectable duchy. First: With regard to the opinion you desire concerning a common-place book: in general, I much disapprove the use of it; it is chiefly intended for persons who mean to be authors, and tends to impair the memory, and to deprive you of a ready, extempore use of your reading, by accustoming the mind to discharge itself of its reading on paper, instead of relying on its natural power of retention, aided and fortified by frequent revisions of its ideas and materials. Some things must be common-placed in order to be of any use; dates, chronological order, and the like; for instance, Nathaniel Bacon (author of a work on the History of England) ought to be extracted in the best method you can; but, in general, my advice to you is, not to put common-place upon paper, but, as an equivalent to it, to endeavor to range and methodize in your head what you read, and, by so doing frequently and habitually, to fix matter in the memory. I desired you, some time since, to read Lord Clarendon's History of the Civil Wars. I have lately read a much honester and more instructive book of the same period of history, by Thomas May, which I will send to you. If you have not read Burnet's History of His Own Times, I beg you will. I hope your father is well. My love to the girls.

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*On this book Lord Grenville remarks:

"This book, though at present little known, formerly enjoyed a very high reputation. It is written with a very evident bias to the principles of the parliamentary party to which Bacon adhered, but contains a great deal of very useful and valuable matter. It was published in two parts, the first in 1647, the second in 1651, and was secretly reprinted in 1672, and again in 1682; after which edition, the publisher was indicted and outlawed. After the Revolution, a fourth edition was printed, with an advertisement asserting, on the authority of Lord Chief Justice Vaughan, one of Selden's executors, that the groundwork of this book was laid by that great and learned man. And it is probable, on the ground of this assertion, that in the folio edition of Bacon's book, printed in 1739, it is said, in the title-page, to have been 'collected from some manuscript notes of John Selden, Esq.' But it does not appear that this notion rests on any sufficient evidence. It is, however, manifest from some expressions in the very unjust and disparaging account given of this work in Nicholson's Historical Library (part i. p. 150), that Nathaniel Bacon was generally considered as an imitator and follower of Selden."

LETTER X.

Pay Office, *April* 9, 1755.

My dear Nephew,—I rejoice extremely to hear that your father and the girls are not unentertained on their travels. In the meantime, your travels through the paths of literature, arts, and sciences (a road sometimes set with flowers, and sometimes difficult, laborious, and arduous), are not only infinitely more profitable in future, but at present, upon the whole, infinitely more delightful. My own travels at present are none of the pleasantest. I am going through a fit of the gout, with much proper pain and what proper patience I may. *Avis au lecteur*, my sweet boy; remember thy Creator in the days of thy youth. Let no excesses lay the foundations of gout and the rest of Pandora's box; nor any immoralities or vicious courses sow the seeds of a too late and painful repentance. Here ends my sermon, which, I trust, you are not fine gentleman enough, or, in plain English, silly fellow enough, to laugh at. Lady Hester is much yours. Let me hear some account of your intercourse with the muses.

LETTER XI.

Pay Office, *April* 15, 1755.

A thousand thanks to my dear boy for a very pretty letter. I like extremely the account you give of your literary life; the reflections you make upon some West Saxon actors in the times you are reading are natural, manly, and sensible, and flow from a heart that will make you far superior to any of them. I am content you should be interrupted (provided the interruption be not long) in the course of your reading, by declaiming in defence of the thesis you have so wisely chosen to maintain. It is true, indeed, that the affirmative maxim, "Omne solum forti patria est (Every soil is his country to the brave)" has supported some great and good men under the persecutions of faction and party injustice, and taught them to prefer an hospitable retreat in a foreign land to an unnatural mother country. Some few such may be found in ancient times: in our own country also some. Such was Algernon Sidney, Ludlow, and others. But how dangerous it is to trust frail, corrupt man, with such an aphorism! What fatal casuistry is it big with! How many a villain might and has masked himself in the sayings of ancient illustrious exiles, while he was, in fact, dissolving all the nearest and dearest ties that hold societies together, and spurning at all laws, divine and human! How easy the transition from this political to some impious ecclesiastical aphorisms! If all soils are alike to the brave and virtuous, so may all Churches and modes of worship; that is, all will be equally neglected and violated. Instead of every soil being his country, he will have no one for his country; he will be the forlorn outcast of mankind. Such was the late Bolingbroke of impious memory. Let me know when your declamation is over. Pardon an observation on style. "I received yours," is vulgar and mercantile; "your letter," is the way of writing.

LETTER XII.

Pay Office, *May* 20, 1755.

My dear Nephew,—I am extremely concerned to hear that you have been ill, especially as your account of an illness you speak of as past, implies such remains of disorder as I beg you will give all proper attention to. By the medicine your physician has ordered, I conceive he considers your case in some degree nervous. If that be so, advise with him whether a little change of air and of the scene, together with some weeks' course of steel waters, would not be highly proper for you. I am to go, the day after to-morrow, to

Sunning Hill, in Windsor Forest, where I propose to drink those waters for about a month. Lady Hester and I will be happy in your company, if your doctor shall be of opinion that such waters may be of service to you; which, I hope, will be his opinion. Besides health recovered, the muses shall not be quite forgot; we will ride, read, walk, and philosophize, extremely at our ease, and you may return to Cambridge with new ardor, or, at least, with strength repaired, when we leave Sunning Hill. If you come, the sooner the better on all accounts. We propose to go into Buckinghamshire in about a month. I rejoice that your declamation is over, and that you have begun, my dearest nephew, to open your mouth in public. I wish I had heard you perform; the only way I ever shall hear your praises from your own mouth. My gout prevented my so much intended and wished for journey to Cambridge, and now my plan of drinking waters renders it impossible. Come, then, my dear boy, to us; and so Mahomet and the mountain may meet, no matter which moves to the other.

LETTER XIII.

July 13, 1755.

MY DEAR NEPHEW,—I have delayed writing to you in expectation of hearing farther from you upon the subject of your stay at college. No news is the best news, and I will hope now that all your difficulties upon that head are at an end. I represent you to myself deep in study, and drinking large draughts of intellectual nectar; a very delicious state to a mind happy enough, and elevated enough, to thirst after knowledge, and true, honest fame, even as the hart panteth after the water brooks. When I name knowledge, I ever intend learning as the weapon and instrument only of manly, honorable, and virtuous action upon the stage of the world, both in private and public life; as a gentleman, and as a member of the commonwealth, who is to answer for all he does to the laws of his country, to his own breast and conscience, and at the tribunal of honor and good fame. You, my dear boy, will not only be acquitted, but applauded and dignified at all these respectable and awful bars. So, go on and prosper in your glorious and happy career; not forgetting to walk an hour briskly, every morning and evening, to fortify the nerves. I wish to hear, in some little time, of the progress you shall have made in the course of reading chalked out. Adieu.

LETTER XIV.

STOWE, *July* 24, 1755.

MY DEAR NEPHEW,—I am just leaving this place to go to Wotton; but I will not lose the post, though I have time but for one line. I am extremely happy that you can stay at your college, and pursue the prudent and glorious resolution of employing your present moments with a view to the future. May your noble and generous love of virtue pay you with the sweet rewards of a self-approving heart and an applauding country! and may I enjoy the true satisfaction of seeing your fame and happiness, and of thinking that I may have been fortunate enough to have contributed, in any small degree, to do common justice to kind nature by a suitable education. I am no very good judge of the question concerning the books; I believe they are your own in the same sense that your wearing apparel is. I would retain them, and leave the candid and equitable Mr. —— to plan, with the honest Mr. ——, schemes of perpetual vexation. As to the persons just mentioned, I trust that you bear about you a mind and heart much superior to such malice; and that you are as little capable of resenting it, with any sensations but those of cool, decent contempt, as you are of fearing the consequences of such low efforts. As to the caution money, I think you have done well. The case of the chambers, I conceive, you likewise apprehend rightly. Let me know in your next what these two articles require you to pay down, and how far your present cash is exhausted, and I will direct Mr. Campbell to give you credit accordingly. Believe me, my dear nephew, truly happy to be of use to you.

LETTER XV.

BATH, *Sept.* 25, 1755.

I have not conversed with my dear nephew a long time: I have been much in a post-chaise, living a wandering Scythian life, and he has been more usefully employed than in reading or writing letters; traveling through the various, instructing, and entertaining road of history. I have a particular pleasure in hearing, now and then, a word from you in your journey, just while you are changing horses, if I may so call it, and getting from one author to another. I suppose you are going through the biographers, from Edward the Fourth downwards, not intending to stop till you reach to the continuator of honest Rapin. . . . I have met with a scheme of chronology by Blair, showing all contemporary historical characters, through all ages: it is of great use to consult frequently, in order to fix periods and throw collateral light upon any particular branch you are reading. Let me know, when I have the pleasure of a letter from you, how far you are advanced in English history. You may probably not have heard authentically of Governor Lyttleton's captivity and release. He is safe and well in England, after being taken and detained in France some days. Sir Richard and he met, unexpectedly enough, at Brussels, and came together to England. I propose to return to London in about a week, where I hope to find Lady Hester as well as I left her. We are both much indebted for your kind and affectionate wishes "In publica commoda peccem, si longo sermone moier (I would sin against the public weal were I to detain with a long discourse)," one bent on so honorable and virtuous a journey as you are.

LETTER XVI.

PAY OFFICE, *Dec.* 6, 1755.

Of all the various satisfactions of mind I have felt upon some late events, none has affected me with more sensibility and delight than the reading my dear nephew's letter. The matter of it is worthy of a better age than that we live in; worthy of your own noble, untainted mind; and the manner and expression of it is such as, I trust, will one day make you a powerful instrument toward mending the present degeneracy. Examples are unnecessary to happy natures; and it is well for your future glory and happiness that this is the case; for to copy any now existing, might cramp genius and check the native spirit of the piece, rather than contribute to the perfection of it. I learn, from Sir Richard Lyttleton, that we may have the pleasure of meeting soon, as he has already, or intends to offer you a bed at his house. It is on this, as on all occasions, little necessary to preach prudence, or to intimate a wish that your studies at Cambridge might not be broken by a long interruption of them. I know the rightness of your own mind, and leave you to all the generous and animating motives you find there, for pursuing improvements in literature and useful knowledge, as much better counsellors than your ever most affectionate uncle.

LETTER XVII.

HORSE GUARDS, *Jan.* 13, 1756.

MY DEAR NEPHEW,—Let me thank you a thousand times for your remembering me, and giving me the pleasure of hearing that you was well, and had laid by the ideas of London and its dissipations, to resume the sober train of thoughts that gowns, square caps, quadrangles, and matin-bells naturally draw after them. I hope the air of Cambridge has brought no disorder upon you, and that you will compound with the muses so as to dedicate some hours, not less than two, of the day to exercise. The earlier you rise, the better your nerves will bear study. When you next do me the pleasure to write to me, I beg a copy of your elegy on your mother's picture: it is such admirable poetry, that I beg you to plunge deep into prose and severer studies, and not indulge your genius with verse for the present. Substitute Tully and Demosthenes in the place of Homer and Virgil; and arm yourself with all the variety of manner, copiousness, and beauty of diction, nobleness and magnificence of ideas, of the Roman consul; and render the powers of eloquence complete by the irresistible torrent of vehement argumentation, the close and forcible reasoning, and the depth and fortitude of mind of the Grecian statesman. This I mean at leisure intervals, and to relieve the course of those studies which you intend to make your principal object. The book relating to the empire of Germany, which I could not recollect, is Vitriarius's Institutiones Juris Publici, an admirable book in its kind, and esteemed of the best authority in matters much controverted. We are all well.

Your affectionate uncle,
WILLIAM PITT.

In the 'Correspondence of the Earl of Chatham,' edited by the executors of his son, John, Earl of Chatham, and published from the original manuscripts in their possession, '1838,' there are three more letters addressed to Mr. Thomas Pitt, during his studies at Cambridge, but they are without significance, beyond inquiries after the health of his nephew, who was admitted to the degree of A.M. in 1759. In February, 1800, he visited Portugal, attached to the British Legation to the Court of Lisbon, and, accompanied by the Earl of Strathmore, made a tour through Spain, and into Italy. On his return, he soon entered Parliament, and, until his death, was connected with the public service.

JOHN LOCKE.—ON STUDY.

ITS LIMITATIONS, OBJECTS, AND METHODS.

LIMITATIONS OF THE FIELD.

THE end of study is knowledge, and the end of knowledge is practice or communication—for delight is so commonly joined with all improvements in knowledge, that it need not be proposed as an end. The extent of knowledge, or things knowable, is so vast, our duration here so short, the entrance by which the knowledge of things gets into our understanding so narrow, with the necessary allowances for childhood and old age in which so little can be acquired beyond the range of the senses, and the refreshments of our bodies and unavoidable avocations, that it much behooves us to improve, the best we can, our time and talent on things most worthy of being known, and take the most direct road we can to our objects. To this purpose, it may not, perhaps, be amiss to decline some things that are likely to bewilder us, or at least lie out of our way—

1. As all that maze of words and phrases which have been invented and employed only to instruct and amuse people in the art of disputing, and will be found, perhaps, when looked into, to have little or no meaning; and with this kind of stuff the logics, physics, ethics, metaphysics, and divinity of the schools are thought by some to be too much filled. This I am sure, that where we leave distinctions without finding a difference in things; where we make variety of phrases, or think we furnish ourselves with arguments without a progress in the real knowledge of things, we only fill our heads with empty sounds, which however thought to belong to learning and knowledge, will no more improve our understandings and strengthen our reason, than the noise of a jack will fill our bellies or strengthen our bodies; and the art to fence with those which are called subtleties, is of no more use than it would be to be dexterous in tying and untying knots in cobwebs.

2. An aim and desire to know what hath been other men's opinions. Truth needs no recommendation, and error is not mended by it; and in our inquiry after knowledge, it as little concerns us what other men have thought, as it does one who is to go from Oxford to London, to know what scholars walk quietly on foot, inquiring the way and surveying the country as they went, who rode post after their guide without minding the way he went, who were carried along muffled up in a coach with their company, or where one doctor lost or went out of his way, or where another stuck in the mire. I do not say this to

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[*] Abridged. This essay is not contained in Locke's collected works, but was first published in Lord King's Life of the author.

undervalue the light we receive from others, or to think there are not those who assist us mightily in our endeavors after knowledge; perhaps without books we should be as ignorant as the Indians, whose minds are as ill clad as their bodies; but I think it is an idle and useless thing to make it one's business to study what have been other men's sentiments in things where reason is only to be judge, on purpose to be furnished with them, and to be able to cite them on all occasions. However it be esteemed a great part of learning, yet to a man that considers how little time he has, and how much work to do, how many things he is to learn, how many doubts to clear in religion, how many rules to establish to himself in morality, how much pains to be taken with himself to master his unruly desires and passions, how to provide himself against a thousand cases and accidents that will happen, and an infinite deal more, both in his general and particular calling; I say, to a man that considers this well, it will not seem much his business to acquaint himself designedly with the various conceits of men that are to be found in books even upon subjects of moment.

3. Purity of language, a polished style, or exact criticism in foreign languages—thus I think Greek and Latin may be called, as well as French and Italian,—and to spend much time in these may perhaps serve to set one off in the world, and give one the reputation of a scholar. But if that be all, methinks it is laboring for an outside; it is at best but a handsome dress of truth or falsehood that one busies one's self about, and makes most of those who lay out their time this way rather as fashionable gentlemen, than as wise or useful men.

There are so many advantages of speaking one's own language well, and being a master in it, that let a man's calling be what it will, it can not but be worth our taking some pains in it, but men's style is by no means to have the first place in our studies: but he that makes good language subservient to a good life, and an instrument of virtue, is doubly enabled to do good to others.

4. Antiquity and history as far as they are designed only to furnish us with story and talk. For the stories of Alexander and Cæsar, no farther than they instruct us in the art of living well, and furnish us with observations of wisdom and prudence, are not one jot to be preferred to the history of Robin Hood, or the Seven Wise Masters. I do not deny but history is very useful, and very instructive of human life; but if it be studied only for the reputation of being an historian, it is a very empty thing; and he that can tell all the particulars of Herodotus and Plutarch, Curtius and Livy, without making any other use of them, may be an ignorant man with a good memory, and with all his pains hath only filled his head with Christmas tales. And which is worse, the greatest part of history being made up of wars and conquests, and their style, especially the Romans, speaking of valor as the chief, if not the only virtue, we are in danger to be misled by the general current and business of history, and looking on Alexander and Cæsar, and such like heroes, as the highest instances of human greatness, because they each of them caused the death of several hundred thousand men, and the ruin of a much greater number, overrun a great part of the earth, and killed the inhabitants to possess themselves of their countries—we are apt to make butchery, and rapine the chief marks and very essence of human greatness.

5. Nice questions and remote useless speculations, as where the earthly

paradise was—or what fruit it was that was forbidden—where Lazarus's soul was whilst his body lay dead—and what kind of bodies we shall have at the resurrection? &c., &c.

These things, well regulated, will cut off at once a great deal of business from one who is setting out into a course of study; not that all these are to be counted utterly useless, and lost time cast away on them, The four last may be each of them the full and laudable employment of several persons who may with great advantage make languages, history, or antiquity, their study.

OBJECTS IN LIFE TO BE REGARDED.

1. Heaven being our great business and interest, the knowledge which may direct us thither is certainly so too, so that this is without peradventure, the study that ought to take the first, and chiefest place in our thoughts; but wherein it consists, its parts, method, and application, will deserve a chapter.

2. The next thing to happiness in the other world, is a quiet prosperous passage through this, which requires a discreet conduct and management of ourselves, in the several occurrences of our lives. The study of prudence then seems to me to deserve the second place in our thoughts and studies. A man may be, perhaps, a good man (which lives in truth and sincerity of heart towards God), with a small portion of prudence, but he will never be very happy in himself, nor useful to others without. These two are every man's business.

3. If those who are left by their predecessors with a plentiful fortune are excused from having a particular calling, in order to their subsistence in this life, it is yet certain that, by the law of God, they are under an obligation of doing something; which, having been judiciously treated by an able pen, I shall not meddle with, but pass to those who have made letters their business; and in these I think it is incumbent to make the proper business of their calling the third place in their study.

This order being laid, it will be easy for every one to determine with himself what tongues and histories are to be studied by him, and how far in subserviency to his general or particular calling.

HEALTH OF BODY AND MIND TO BE WATCHED.

Our bodies and our minds are neither of them capable of continual study, and we must therefore take a just measure of both in our endeavors. He that sinks his vessel by overloading it, though it be with gold and silver, and precious stones, will give his owner but an ill account of his voyage. General rules must be adapted to the constitution and strength of each individual, and the mode of study may be varied, from books to conversation, according to the condition of mind or body.

Great care is to be taken that our studies encroach not upon our sleep: this I am sure, sleep is the great balsam of life and restorative of nature, and studious sedentary men have more need of it than the active and laborious. We are to lay by our books and meditations when we find either our heads or stomachs indisposed upon any occasion; study at such time doing great harm to the body and very little good to the mind.

1. As the body, so the mind also, gives laws to our studies; I mean to the duration and continuance of them; let it be never so capacious, never so active, it is not capable of constant labor nor total rest. The labor of the mind is study, or intention of thought, and when we find it is weary, either in pursuing other men's thoughts, as in reading, or tumbling or tossing its own as in meditation, it is time to give off and let it recover itself. Sometimes meditation gives a refreshment to the weariness of reading, and *vice versa*, sometimes the change of ground, *i. e.*, going from one subject or science to another, rouses

the mind, and fills it with fresh vigor; oftentimes discourse enlivens it when it flags, and puts an end to the weariness without stopping it one jot, but rather forwarding it in its journey; and sometimes it is so tired, that nothing but a perfect relaxation will serve the turn. All these are to be made use of according as every one finds most successful in himself to the best husbandry of his time and thought.

2. The mind has sympathies and antipathies as well as the body; it has a natural preference often of one study before another. It would be well if one had a perfect command of them, and sometimes one is to try for the mastery, to bring the mind into order and a pliant obedience; but generally it is better to follow the bent and tendency of the mind itself, so long as it keeps within the bounds of our proper business, wherein there is generally latitude enough. By this means, we shall go not only a great deal faster, and hold out a great deal longer, but the discovery we shall make will be a great deal clearer, and make deeper impressions in our minds. The inclination of the mind is as the palate of the stomach; that seldom digests well in the stomach, or adds much strength to the body that nauseates the palate, and is not recommended by it.

There is a kind of restiveness in almost every one's mind; sometimes without perceiving the cause, it will boggle and stand still, and one can not get it a step forward; and at another time it will press forward and there is no holding it in. It is always good to take it when it is willing, and keep on whilst it goes at ease.

TRUTH—THE MAIN OBJECT OF STUDY—METHOD.

1. It is a duty we owe to God as the fountain and author of all truth, who is truth itself; and it is a duty also we owe our own selves, if we will deal candidly and sincerely with our own souls, to have our minds constantly disposed to entertain and receive truth wheresoever we meet with it, or under whatsoever appearance of plain or ordinary, strange, new, or perhaps displeasing, it may come in our way. Truth is the proper object, the proper riches and furniture of the mind, and according as his stock of this is, so is the difference and value of one man above another. He that fills his head with vain notions and false opinions, may have his mind perhaps puffed up and seemingly much enlarged, but in truth it is narrow and empty; for all that it comprehends, all that it contains, amounts to nothing, or less than nothing; for falsehood is below ignorance, and a lie worse than nothing.

Our first and great duty, then, is to bring to our studies and to our inquiries after knowledge, a mind covetous of truth; that seeks after nothing else, and after that impartially, and embraces it, how poor, how contemptible, how unfashionable soever it may seem. This is that which all studious men profess to do, and yet it is that where I think very many miscarry. Who is there almost that has not opinions planted in him by education time out of mind; which by that means come to be as the municipal laws of the country, which must not be questioned, but are then looked on with reverence as the standards of right and wrong, truth and falsehood; when perhaps these so sacred opinions were but the oracles of the nursery, or the traditional grave talk of those who pretend to inform our childhood; who received them from hand to hand without ever examining them. This is the fate of our tender age, which being thus seasoned early, it grows by continuation of time, as it were into the very constitution of the mind, which afterwards very difficultly receives a different tincture. When we are grown up, we find the world divided into bands and companies: not only as congregated under several politics and governments, but united only upon account of opinions, and in that respect, combined strictly one with another, and distinguished from others, especially in matters of religion. If birth or chance have not thrown a man young into any of these, which yet seldom fails to happen, choice, when he is grown up, certainly puts him into some or other of them; often out of an opinion that that party is in the right, and sometimes because he finds it is not safe to stand alone, and therefore thinks it convenient to herd somewhere. Now, in every one of these parties of men there are a certain number of opinions which are received and owned as the doctrines and tenets of that society, with the profession and practice whereof all who are of their communion ought to give up themselves, or else they will be scarce looked on as of that society, or at best, be thought but lukewarm brothers, or in danger to apostatize.

It is plain in the great difference and contrariety of opinions that are amongst these several parties, that there is much falsehood and abundance of mistakes in most of them. Cunning in some, and ignorance in others, first made them keep them up; and yet how seldom is it that implicit faith, fear of losing credit with the party or interest (for all these operate in their turns), suffers any one to question the tenet of his party; but altogether in a bundle he receives, embraces, and without examining, he professes, and sticks to them, and measures all other opinions by them. Worldly interest also insinuates into several men's minds divers opinions, which suiting with their temporal advantage, are kindly received, and in time so riveted there, that it is not easy to remove them. By these, and perhaps other means, opinions come to be settled and fixed in men's minds, which, whether true or false, there they remain in reputation as substantial material truths, and so are seldom questioned or examined by those who entertain them; and if they happen to be false, as in most men the greatest part must necessarily be, they put a man quite out of the way in the whole course of his studies; and though in his reading and inquiries, he flatters himself that his design is to inform his understanding in the real knowledge of truth, yet in effect it tends and reaches to nothing but the confirming of his already received opinions, the things he meets with in other men's writings and discoveries being received or neglected as they hold proportion with those anticipations which before had taken possession of his mind. . . . These ancient pre-occupations of our minds, these several and almost sacred opinions, are to be examined, if we will make way for truth, and put our minds in that freedom which belongs and is necessary to them. A mistake is not the less so, and will never grow into a truth, because we have believed it a long time, though perhaps it be the harder to part with: and an error is not the less dangerous, nor the less contrary to truth, because it is cried up and had in veneration by any party, though it is likely that we shall be the less disposed to think it so. Here, therefore, we have need of all our force and all our sincerity; and here it is we have use of the assistance of a serious and sober friend, who may help us sedately to examine these our received and beloved opinions; for the mind by itself being prepossessed with them can not so easily question, look round, and argue against them.

2. This grand miscarriage in our study draws after it another of less consequence, which yet is very natural for bookish men to run into, and that is the reading of authors very intently and diligently to mind the arguments pro and con they use, and endeavor to lodge them safe in their memory, to serve them upon occasion.

He that desires to be knowing indeed, that covets rather the possession of truth than the show of learning, that designs to improve himself in the solid substantial knowledge of things, ought, I think, to take another course; *i. e.* to endeavor to get a clear and true notion of things as they are in themselves. This being fixed in the mind well (without trusting to or troubling the memory, which often fails us), always naturally suggests arguments upon all occasions, either to defend the truth or confound error. This seems to me to be that which makes some men's discourses to be so clear, evident, and demonstrative, even in a few words; for it is but laying before us the true nature of any thing we would discourse of, and our faculty of reason is so natural to us, that the clear inferences do, as it were, make themselves: we have, as it were, an instinctive knowledge of the truth, which is always most acceptable to the mind, and the mind embraces it in its native and naked beauty.

3. Another thing, which is of great use for the clear conception of truth, is, if we can bring ourselves to it, to think upon things, abstracted and separate from words. Words, without doubt, are the great and almost only way of conveyance of one man's thoughts to another man's understanding; but when a man thinks, reasons, and discourses within himself, I see not what need he has of them.

4. It is of great use in the pursuit of knowledge not to be too confident, nor too distrustful of our own judgment, nor to believe we can comprehend all things nor nothing. He that distrusts his own judgment in every thing, and

thinks his understanding not to be relied on in the search of truth, cuts off his own legs that he may be carried up and down by others, and makes himself a ridiculous dependant upon the knowledge of others, which can possibly be of no use to him; for I can no more know any thing by another man's understanding, than I can see by another man's eyes.

5. It would, therefore, be of great service to us to know how far our faculties can reach, that so we might not go about to fathom where our line is too short; to know what things are the proper objects of our inquiries and understanding, and where it is we ought to stop, and launch out no farther for fear of losing ourselves or our labor. . . . That which seems to me to be suited to the end of man, and lie level to his understanding, is the improvement of natural experiments for the conveniences of this life, and the way of ordering himself so as to attain happiness in the other—*i. e.* moral philosophy, which, in my sense, comprehends religion too, or a man's whole duty.

6. For the shortening of our pains, and keeping us from incurable doubt and perplexity of mind, and an endless inquiry after greater certainty than is to be had, it would be very convenient in the several points that are to be known and studied, to consider what proofs the matter in hand is capable of, and not to expect other kind of evidence than the nature of the thing will bear.

7. A great help to the memory, and means to avoid confusion in our thoughts, is to draw out and have frequently before us a scheme of those sciences we employ our studies in, a map, as it were, of the *mundus intelligibilis.*. This, perhaps, will be best done by every one himself for his own use, as best agreeable to his own notion, though the nearer it comes to the nature and order of things, it is still the better.

8. It will be no hinderance at all to our study if we sometimes study ourselves, *i. e.* our own abilities and defects. There are peculiar endowments and natural fitnesses, as well as defects and weaknesses, almost in every man's mind; when we have considered and made ourselves acquainted with them, we shall not only be the better enabled to find out remedies for the infirmities, but we shall know the better how to turn ourselves to those things which we are best fitted to deal with, and so to apply ourselves in the course of our studies, as we may be able to make the greatest advantage.

READING—MEDITATION—DISCOURSE.

Converse with books, even good books (and all others are a loss of time and even worse), is not, in my opinion, the principal part of study; there are two others that ought to be joined with it, each whereof contributes their share to our improvement in knowledge; and those are meditation and discourse. Reading, methinks, is but collecting the rough materials, amongst which a great deal must be laid aside as useless. Meditation is, as it were, choosing and fitting the materials, framing the timbers, squaring and laying the stones, and raising the building; and discourse with a friend (for wrangling in a dispute is of little use), is, as it were, surveying the structure, walking in the rooms, and observing the symmetry and agreement of the parts, taking notice of the solidity or defects of the works, and the best way to find out and correct what is amiss; besides that, it helps often to discover truths, and fix them in our minds, as much as either of the other two.

THE TIME AND ADVANTAGES OF READING HISTORY.

Whereas in the beginning I cut off history, when read for its tales, so, after the principles of morality are settled, and the capacity of forming a judgment on the actions of men is formed, then the study of history is one of the most useful a young man can apply himself to. There he shall see a picture of the world and the nature of mankind, and so learn to think of men as they are. There he shall see the rise of opinions, and find from what slight, and sometimes shameful occasions, some of them have taken their rise, which yet afterwards have had great authority, and passed almost for sacred in the world, and borne down all before them. There also one may learn great and useful instructions of prudence, and be warned against the cheats and rogueries of the world, with many more advantages, which I shall not here enumerate.

TRACTATE ON EDUCATION

A LETTER TO MASTER SAMUEL HARTLIB.[1]

BY JOHN MILTON.

MASTER HARTLIB:—I am long since persuaded, that to say and do aught worth memory and imitation, no purpose or respect should sooner move us than simply the love of God and of mankind. Nevertheless, to write now the reforming of education, though it be one of the greatest and noblest designs that can be thought on, and for the want whereof this nation perishes, I had not yet at this time been induced but by your earnest entreaties and serious conjurements; as having my mind half diverted for the present in the pursuance of some other assertions, the knowledge and the use of which, can not but be a great furtherance both to the enlargement of truth and honest living with much more peace. Nor should the laws of any private friendship have prevailed with me to divide thus, or transpose my former thoughts; but that I see those aims, those actions which have won you with me the esteem of a person sent hither by some good providence from a far country to be the occasion and incitement of great good to this island. And as I hear you have obtained the same repute with men of most approved wisdom and some of the highest authority among us, not to mention the learned correspondence which you hold in foreign parts, and the extraordinary pains and diligence which you have used in this matter both here and beyond the seas, either by the definite will of God so ruling, or the peculiar sway of nature, which also is God's working. Neither can I think, that so reputed and so valued as you are, you would, to the forfeit of your own discerning ability, impose upon me an unfit and over-ponderous argument; but that the satisfaction which you profess to have received from those incidental discourses which we have wandered into, hath pressed and almost constrained you into a persuasion, that what you require from me in this point, I neither ought nor can in conscience defer beyond this time both of so much need at once, and so much opportunity to try what God hath determined. I will not resist, therefore, whatever it is, either of divine or human obligement, that you lay upon me; but will forthwith set down in writing, as you request me, that voluntary idea, which hath long in silence presented itself to me, of a better education, in extent and comprehension far more large, and yet of time far shorter and of attainment far more certain, than hath been yet in practice. Brief[2] I shall endeavor to be; for that which I have to say, assuredly this nation hath extreme need should be done sooner than spoken. To tell you, therefore, what I have benefited herein among old renowned authors I shall spare; and to search what many modern *Januas*[3] and *Didactics*, more than ever I shall read, have projected, my inclination leads me not. But if you can accept of these few observations which have flowered off, and are, as it were, the burnishing of many studious and contemplative years altogether spent in the search of religious and civil knowledge, and such as pleased you so well in the relating, I here give you them to dispose of.

The end then of learning is, to repair the ruins of our first parents by regaining to know God aright, and out of that knowledge to love him, to imitate him, to be like him, as we may the nearest by possessing our souls of true virtue, which being united to the heavenly grace of faith, makes up the highest perfection. But because our understanding cannot in this body found itself but on sensible things, nor arrive so clearly to the knowledge of God and things invisible, as by orderly coning over the visible and inferior creature, the same method is necessarily to be followed in all discreet teaching.[4] And seeing every nation affords not experience and tradition enough for all kind of learning, therefore we are chiefly taught the languages of those people who have at any time been most industrious after wisdom; so that language is but the instrument conveying to us things useful to be known. And though a linguist should pride himself to have all the tongues that Babel cleft the world into,[5] yet if he have not studied the solid things in them, as well as the words and lexicons, he were nothing so much to be esteemed a learned man, as any yeoman or tradesman competently wise in his mother-dialect only. Hence appear the many mistakes which have made learning generally so unpleasing and so unsuccessful. First, we do amiss to spend seven or eight years merely in scraping together so much miserable Latin and Greek as might be learned otherwise easily and delightfully in one year.[6] And that which casts our proficiency therein so much behind, is our time lost partly in too oft idle vacancies given both to schools and universities; partly in a preposterous exaction, forcing the empty wits of children to compose themes, verses and orations, which are the acts of ripest judgment, and the final work of a head filled by long reading and observing with elegant maxims and copious invention.[7] These are not matters to be wrung from poor striplings, like blood out of the nose, or the plucking of untimely fruit; besides all the ill habit which they get of wretched barbarizing against the Latin and Greek idiom, with their untutored Anglicisms, odious to be read, yet not to be avoided without a well-continued and judicious conversing among pure authors, digested, which they scarce taste.[8] Whereas, if after some preparatory grounds of speech by their certain forms got into memory, they were led to the praxis hereof in some chosen short book lessoned thoroughly to them, they might then forthwith proceed to learn the substance of good things and arts in due order, which would bring the whole language quickly into their power. This I take to be the most rational and most profitable way of learning languages, and whereby we may best hope to give account to God of our youth spent herein. And for the usual method of teaching arts, I deem it to be an old error of universities,[9] not yet well recovered from the scholastic grossness of barbarous ages, that instead of beginning with arts most easy, (and those be such as are most obvious to the sense,) they present their young, unmatriculated novices, at first coming with the most intellective abstractions of logic and metaphysics; so that they having but newly left those grammatic flats and shallows, where they stuck unreasonably to learn a few words with lamentable construction, and now on the sudden transported under another climate, to be tossed and turmoiled with their unballasted wits in fathomless and unquiet deeps of controversy, do for the most part grow into hatred and contempt of learning, mocked and deluded all this while with ragged notions and babblements, while they expected worthy and delightful knowledge; till poverty or youthful years call them importunely their several ways, and hasten them,[10] with the sway of friends, either to an ambitious and mercenary, or ignorantly zealous divinity: some allured to the trade of law,[11] grounding their purposes not on the prudent and heavenly contemplation of justice and equity,[12] which was never taught them, but on the promising and pleasing thoughts of litigous terms, fat contentions, and flowing fees: others betake them to state affairs with souls so unprincipled in virtue and true generous breeding, that flattery, and court-shifts, and tyrannous aphorisms, appear to them the highest points of wisdom;[13] instilling their barren hearts with a conscientious slavery, if, as I rather think, it be not feigned: others, lastly, of a more delicious and airy spirit, retire themselves, knowing no better, to the enjoyments of ease and luxury,[14] living out their days in feast and jollity, which indeed is the wisest and safest course of all these, unless they were with more integrity undertaken. And these are the errors, and these are the fruits of mis-spending our prime youth at the schools and universities, as we do, either in learning mere words, or such things chiefly as were better unlearnt.

I shall detain you no longer in the demonstration of what we should not do, but straight conduct you to a hillside, where I will point you out the right path of a virtuous and noble education; laborious indeed at the first ascent, but else so smooth, so green, so full of goodly prospect and melodious sounds on every side, that the harp of Orpheus was not more charming.[15] I doubt not but ye shall have more ado to drive our dullest and laziest youth, our stocks and stubs, from the infinite desire of such a happy nurture, than we have now to haul and drag our choicest and hopefullest wits to that asinine feast of sow-thistles and brambles which is commonly set before them as all the food and entertainment of their tenderest and most docible age.[9] I call, therefore, a complete and generous education, that which fits a man to perform justly, skilfully, and magnanimously, all the offices both private and public, of peace and war.[16] And how all this may be done between twelve and one-and-twenty, less time than is now bestowed in pure trifling at grammar and sophistry, is to be thus ordered.

First, to find out a spacious house and ground about it fit for an ACADEMY,[17] and big enough to lodge one hundred and fifty persons, whereof twenty or thereabout may be attendants, all under the government of one who shall be thought of desert sufficient, and ability either to do all, or wisely to direct and oversee it done. This place should be at once both school and university,[18] not needing a remove to any other house of scholarship, except it be some peculiar college of law or physic where they mean to be practitioners; but as for those general studies which take up all our time from *Lilly*[19] to the commencing,[20] as they term it, master of art, it should be absolute. After this pattern as many edifices may be converted to this use as shall be needful in every city[21] throughout this land, which would tend much to the increase of learning and civility everywhere. This number, less or more, thus collected, to the convenience of a foot-company or interchangeably two troops of cavalry, should divide their day's work into three parts as it lies orderly,—their studies, their exercise, and their diet.

I. For their studies: first, they should begin with the chief and necessary rules of some good grammar, either that now used or any better;[22] and while this is doing, their speech is to be fashioned to a distinct and clear pronunciation,[23] as near as may be to the Italian, especially in the vowels. For we Englishmen being far northerly, do not open our mouths in the cold air wide enough to grace a southern tongue, but are observed by all other nations to speak exceeding close and inward; so that to smatter Latin with an English mouth, is as ill a hearing as law French. Next, to make them expert in the usefullest points of grammar, and withal to season them and win them early to the love of virtue and true labor, ere any flattering seducement or vain principle seize them wandering, some easy and delightful book[24] of education should be read to them, whereof the Greeks have store, as *Cebes*, *Plutarch*, and other Socratic discourses;[25] but in Latin we have none of classic authority extant, except the two or three first books of Quintilian,[26] and some select pieces elsewhere. But here the main skill and groundwork will be, to temper them such lectures and explanations, upon every opportunity, as may lead and draw them in willing obedience, inflamed with the study of learning and the admiration of virtue, stirred up with high hopes of living to be brave men and worthy patriots, dear to God and famous to all ages. That they may despise and scorn all their childish and ill-taught qualities, to delight in manly and liberal exercises; which he who hath the art and proper eloquence to catch them with, what with mild and effectual persuasions, and what with the intimation of some fear, if need be, but chiefly by his own example, might in a short space gain them to an incredible diligence and courage, infusing into their young breasts such an ingenuous and noble ardor as would not fail to make many of them renowned and matchless men. At the same time, some other hour of the day, might be taught them the rules of arithmetic, and, soon after, the elements of geometry, even playing, as the old manner was. After evening repast, till bed-time, their thoughts would be best taken up in the easy grounds of religion, and the story of scripture.[27] The next step would be to the authors of agriculture, *Cato*, *Varro*, and *Columella*, for the matter is most easy; and if the language be difficult, so much the better; it is not a difficulty above their years. And here will be an occasion of inciting and enabling them hereafter to improve the tillage of their country, to recover the bad soil, and to remedy the waste that is made of good; for this was one of Hercules' praises.[28] Ere half these authors be read, (which will soon be with plying hard and daily,) they can not choose but be masters of any ordinary prose: so that it will be then seasonable for them to learn in any modern author the use of the globes and all the maps, first with the old names, and then with the new;[29] or they might then be capable to read any compendious method of natural philosophy. And at the same time might be entering into the Greek tongue, after the same manner as was before prescribed for the Latin; whereby the difficulties of grammar being soon overcome, all the historical physiology[30] of *Aristotle* and *Theophrastus*, are open before them, and as I may say, under contribution.

The like access will be to Vitruvius, to Seneca's Natural Questions, to Mela, Celsus, Pliny, or Solinus.[31] And having thus past the principles of arithmetic, geometry, astronomy, and geography, with a general compact of physics, they may descend in mathematics to the instrumental science of trigonometry, and from thence to fortification, architecture, enginery, or navigation.[32] And in natural philosophy they may proceed leisurely from the history of meteors, minerals, plants, and living creatures, as far as anatomy.[33] Then also in course might be read to them out of some not tedious writer the institution of physic; that they may know the tempers, the humors, the seasons and how to manage a crudity; which he who can wisely and timely do is not only a great physician to himself and to his friends, but also may at some time or other save an army by this frugal and expenseless means only, and not let the healthy and stout bodies of young men rot away under him for want of this discipline, which is a great pity, and no less a shame to the commander.[34] To set forward all these proceedings in nature and mathematics, what hinders but that they may procure, as oft as shall be needful, the helpful experiences of hunters, fowlers, fishermen, shepherds, gardeners, apothecaries; and in other sciences, architects, engineers, mariners, anatomists, who doubtless would be ready, some for reward, and some to favor such a hopeful seminary.[35] And this will give them such a real tincture of natural knowledge as they shall never forget, but daily argument with delight. Then also those poets which are now counted most hard, will be both facile and pleasant, *Orpheus*, *Hesiod*, *Theocritus*, *Aratus*, *Nicander*, *Oppian*, *Dionysius*; and, in Latin, *Lucretius*, *Manilius*, and the rural part of Virgil.[36]

By this time years and good general precepts will have furnished them more distinctly with that act of reason which in ethics is called *proairesis*, that they may with some judgment contemplate upon moral good and evil.[37] Then will be required a special reinforcement of constant and sound endoctrinating, to set them right and firm, instructing them more amply in the knowledge of virtue and hatred of vice; while their young and pliant affections are led through all the moral works of *Plato*, *Xenophon*, *Cicero*, *Plutarch*, *Laertius*, and those *Locrian* remnants; but still to be reduced in their nightward studies wherewith they close the day's work under the determinate sentence of David or Solomon, or the evangelist and apostolic Scriptures.[38] Being perfect in the knowledge of personal duty, they may then begin the study of economics.[39] And either now or before this, they may have easily learned at any odd hour the Italian tongue.[40] And soon after, but with wariness and good antidote, it would be wholesome enough to let them taste some choice comedies, Greek, Latin or Italian; those tragedies also that treat of household matters, as *Trachiniæ*, *Alcestis*, and the like.[41] The next remove must be to the study of Politics;[42] to know the beginning, end, and reasons of political societies, that they may not, in a dangerous fit of the commonwealth, be such poor shaken uncertain reeds, of such a tottering conscience as many of our great councilors have lately shown themselves, but steadfast pillars of the state. After this they are to dive into the grounds of law and legal justice, delivered first and with the best warrant by Moses, and, as far as human prudence can be trusted, in those extolled remains of Grecian lawgivers, *Lycurgus*, *Solon*, *Zaleucus*, *Charondas*; and thence to all the Roman edicts and tables, with their Justinian; and so down to the Saxon and common laws of England, and the statutes.[43] Sundays, also, and every evening may now be understandingly spent in the highest matters of theology and church history, ancient and modern: and ere this time at a set hour the Hebrew tongue might have been gained, that the Scriptures may now be read in their own original; whereto it would be no impossibility to add the Chaldee and the Syrian dialect.[44] When all these employments are well conquered, then will the choice histories, heroic poems, and attic tragedies of stateliest and most regal argument, with all the famous political orations, offer themselves; which, if they were not only read, but some of them got by memory, and solemnly pronounced with right accent and grace, as might be taught, would endure them even with the spirit and vigor of Demosthenes or Cicero, Euripides or Sophocles.[45] And now, lastly, will be the time to read with them those organic arts which enable men at discourse, and write perspicuously, elegantly, and according to the fitted style of lofty, mean or lowly.[46] Logic, therefore, so much as is useful, is to be referred to this due place, with all her well couched heads and topics, until it be time to open her contracted palm into a graceful and ornate rhetoric taught out of the rule of Plato, Aristotle, Phalereus, Cicero, Hermogenes, Longinus.[47] To which poetry would be made subsequent, or indeed rather precedent, as being less subtile and fine, but more simple, sensuous and passionate. I mean not here the prosody of a verse, which they could not but have hit on before among the rudiments of grammar, but that sublime art which in Aristotle's Poetics, in Horace, and the Italian commentaries of Castlevetro, Tasso, Mazzoni, and others, teaches what the laws are of a true epic poem, what of a dramatic, what of a lyric, what decorum is, which is the grand master-piece to observe.[48] This would make them soon perceive what despicable creatures our common rhymers and play-writers be; and show them what religious, what glorious and magnificent use might be made of poetry, both in divine and human things.[49] From hence, and not till now, will be the right season of forming them to be able writers and composers in every excellent matter, when they shall be thus fraught with an universal insight into things: or whether they be to speak in parliament or council, honor and attention would be waiting on their lips.[50] There would then appear in pulpits other visages, other gestures, and stuff otherwise wrought, than we now sit under, oft-times to as great a trial of our patience as any other that they preach to us.[51] These are studies wherein our noble and our gentle youth ought to bestow their time in a disciplinary way from twelve to one-and-twenty, unless they rely more upon their ancestors dead, than upon themselves living.[52] In which methodical course it is so supposed they must proceed by the steady pace of learning onward, as at convenient times for memory's sake to retire back into the middle ward, and sometimes into the rear of what they have been taught, until they have confirmed and solidly united the whole body of their perfected knowledge, like the last embattling of a Roman legion.[53] Now will be worth the seeing what exercises and recreations may best agree and become these studies.

II. The course of study hitherto briefly described is, what I can guess by reading, likest to those ancient and famous schools of Pythagoras, Plato, Isocrates, Aristotle, and such others, out of which were bred such a number of renowned philosophers, orators, historians, poets, and princes, all over Greece, Italy, and Asia, besides the flourishing studies of Cyrene and Alexandria.[54] But herein it shall exceed them, and supply a defect as great as that which Plato noted in the commonwealth of Sparta; whereas that city trained up their youth most for war, and these in their academies and Lycæum all for the gown, this institution of breeding which I here delineate, shall be equally good both for peace and war.[55] Therefore, about an hour and a half ere they eat at noon should be allowed them for exercise, and due rest afterwards; but the time for this may be enlarged at pleasure, according as their rising in the morning shall be early.[56] The exercise which I commend first is the exact use of their weapon, to guard, and to strike safely with edge or point. This will keep them healthy, nimble, strong, and well in breath; is also the likeliest means to make them grow large and tall, and to inspire them with a gallant and fearless courage, which being tempered with seasonable lectures and precepts to make them of true fortitude and patience, will turn into a native and heroic valor, and make them hate the cowardice of doing wrong.[57] They must be also practiced in all the locks and gripes of wrestling, wherein Englishmen are wont to excel, as need may often be in fight to tug, to grapple, and to close.[58] And this perhaps will be enough wherein to prove and heat their single strength. The interim of unsweating themselves regularly, and convenient rest before meat, may both with profit and delight be taken up in recreating and composing their travailed spirits with the solemn and divine harmonies of music[59] heard or learned, either whilst the skillful organist plies his grave and fancied descant in lofty fugues,[60] or the whole symphony with artful and unimaginable touches adorn and grace the well studied chords of some choice composer;[61] sometimes the lute or soft organ-stop waiting on elegant voices either to religious, martial, or civil ditties, which, if wise men and prophets be not extremely out, have a great power over dispositions and manners to smooth and make them gentle from rustic harshness and distempered passions.[62] The like also would not be inexpedient after meat, to assist and cherish nature in her first concoction, and send their minds back to study in good tune and satisfaction. Where having followed it under vigilant eyes until about two hours before supper, they are, by a sudden alarum or watchword, to be called out to their military motions, under sky or covert according to the season, as was the Roman wont; first on foot, then, as their age permits, on horseback to all the art of cavalry;[63] that having in sport, but with much exactness and daily muster, served out the rudiments of their soldiership in all the skill of embattling, marching, encamping, fortifying, besieging, and battering, with all the helps of ancient and modern stratagems, tactics, and warlike maxims, they may, as it were out of a long war, come forth renowned and perfect commanders in the service of their country.[64] They would not then, if they were trusted with fair and hopeful armies, suffer them for want of just and wise discipline to shed away from about them like sick feathers, though they be never so oft supplied; they would not suffer their empty and unrecruitable colonels of twenty men in a company to quaff out or convey into secret hoards the wages of a delusive list and miserable remnant;[65] yet in the meanwhile to be overmastered with a score or two of drunkards, the only soldiery left about them, or else to comply with all rapines and violences. No, certainly, if they knew ought of that knowledge which belongs to good men or good governors, they would not suffer these things. But to return to our own institute. Besides these constant exercises at home, there is another opportunity of gaining experience to be won from pleasure itself abroad: in those vernal seasons of the year, when the air is calm and pleasant, it were an injury and sullenness against nature not to go out and see her riches, and partake in her rejoicing with heaven and earth.[66] I should not, therefore, be a persuader to them of studying much then, after two or three years that they have well laid their grounds, but to ride out in companies with prudent and staid guides to all the quarters of the land, learning and observing all places of strength, all commodities of building, and of soil for towns and tillage, harbors, and ports for trade.[67] Sometimes taking sea as far as to our navy, to learn there also what they can in the practical knowledge of sailing and sea-fight. These ways would try all their peculiar gifts of nature, and if there were any secret excellence among them, would fetch it out and give it fair opportunities to advance itself by, which could not but mightily redound to the good of this nation, and bring into fashion again those old admired virtues and excellencies with far more advantage now in this purity of Christian knowledge.[68] Nor shall we then need the monsieurs of Paris to take our hopeful youth into their slight and prodigal custodies, and send them over back again transformed into mimics, apes, and kikshose. But if they desire to see other countries at three or four and twenty years of age, not to learn principles but to enlarge experience and make wise observation, they will by that time be such as shall deserve the regard and honor of all men where they pass, and the society and friendship of those in all places who are best and most eminent.[69] And perhaps then other nations will be glad to visit us for their breeding, or else to imitate us in their own country.

III. Now, lastly, for their diet there can not be much to say, save only that it would be best in the same house; for much time else would be lost abroad, and many ill habits got; and that it should be plain, healthful, and moderate, I suppose is out of controversy.[70]

Thus, Mr. Hartlib, you have a general view in writing, as your desire was, of that which at several times I had discoursed with you concerning the best and noblest way of education; not beginning, as some have done, from the cradle, which yet might be worth many considerations, if brevity had not been my scope.[71] Many other circumstances also I could have mentioned, but this, to such as have the worth in them to make trial, for light and direction may be enough. Only I believe that this is not a bow for every man to shoot in that counts himself a teacher, but will require sinews almost equal to those which Homer gave Ulysses;[72] yet I am withal pursuaded that it may prove much more easy in the essay than it now seems at distance, and much more illustrious; howbeit not more difficult than I imagine, and that imagination presents me with nothing but very happy, and very possible, according to best wishes, if God have so decreed, and this age have spirit and capacity enough to apprehend.

STUDIES AND CONDUCT.

SUGGESTIONS BY MEN EMINENT IN LETTERS AND AFFAIRS.

Second Article.

LETTER FROM LORD BROUGHAM TO ZACHARY MACAULEY, ESQ., ON THE TRAINING OF HIS SON, (THE LATE LORD MACAULEY,) AS AN ORATOR.

NEWCASTLE, *March* 10, 1823.

MY DEAR FRIEND:—My principal object in writing to you to-day is to offer you some suggestions, in consequence of some conversation I have just had with Lord Grey, who has spoken of your son (at Cambridge) in terms of the greatest praise. He takes his account from his son; but from all I know, and have learnt in other quarters, I doubt not that his judgment is well formed. Now you, of course, destine him for the bar, and, assuming that this, and the public objects incidental to it, are in his views, I would fain impress upon you, (and through you, upon him,) a truth or two which experience has made me aware of, and which I would have given a great deal to have been acquainted with earlier in life from the experience of others.

First, that the foundation of all excellence is to be laid in early application to general knowledge, is clear; that he is already aware of; and equally so it is, (of which he may not be so well aware,) that professional eminence can only be attained by entering betimes into the lowest drudgery—the most repulsive labors of the profession—even a year in an attorney's office, as the law is now practiced, I should not hold too severe a task, or too high a price to pay, for the benefit it must surely lead to; but, at all events, the life of a special pleader, I am quite convinced, is the thing before being called to the bar. A young man whose mind has once been well imbued with general learning, and has acquired classical propensities, will never sink into a mere drudge. He will always save himself harmless from the dull atmosphere he must live and work in, and the sooner he will emerge from it, and arrive at eminence. But what I wish to inculcate especially, with a view to the great talent for public speaking which your son happily possess, is that he should cultivate that talent in the only way in which it can reach the height of the art, and I wish to turn his attention to two points. I speak on this subject with the authority both of experience and observation;

I have made it very much my study in theory; have written a great deal upon it which may never see the light, and something which has been published; have meditated much and conversed much on it with famous men; have had some little practical experience in it, but have prepared for much more than I ever tried, by a variety of laborious methods, reading, writing, much translation, composing in foreign languages, &c., and I have lived in times when there were great orators among us; therefore I reckon my opinion worth listening to, and the rather, because I have the utmost confidence in it myself, and should have saved a world of trouble and much time had I started with a conviction of its truth.

1. The first point is this,—the beginning of the art is to acquire a habit of easy speaking; and, in whatever way this can be had (which individual inclination or accident will generally direct, and may safely be allowed to do so,) it must be had. Now, I differ from all other doctors of rhetoric in this,—I say, let him first of all learn to speak easily and fluently, as well as sensibly as he can no doubt, but at any rate let him learn to speak. This is to eloquence, or good public speaking, what the being able to talk in a child is to correct grammatical speech. It is the requisite foundation, and on it you must build. Moreover, it can only be acquired young, therefore let it by all means, and at any sacrifice, be gotten hold of forthwith. But in acquiring it every sort of slovenly error will also be acquired. It must be got by a habit of easy writing (which, as Wyndham said, proved hard reading) by a custom of talking much in company; by speaking in debating societies, with little attention to rule, and more love of saying something at any rate than of saying any thing well. I can even suppose that more attention is paid to the matter in such discussions than in the manner of saying it; yet still to say it easily, *ad libitum*, to be able to say what you choose, and what you have to say,—this is the first requisite, to acquire which every thing else must for the present be sacrificed.

2. The next step is the grand one—to convert this style of easy speaking into chaste eloquence. And here there is but one rule. I do earnestly entreat your son to set daily and nightly before him the Greek models. First of all he may look to the best modern speeches (as he probably has already); Burke's best compositions, as the "Thoughts on the Cause of the Present Discontents;" speech "On the American Conciliation," and "On the Nabob of Arcot's Debt;" Fox's "Speech on the Westminster Scrutiny," (the first part of which he should pore over till he has it by heart); "On the Russian Armament," and "On the War," 1803, with one or two of

Wyndham's best, and very few, or rather none, of Sheridan's; but he must by no means stop here. If he would be a great orator, he must go at once to the fountain head, and be familiar with every one of the great orations of Demosthenes. I take for granted that he knows those of Cicero by heart; they are very beautiful, but not very useful, except perhaps the *Milo*, *pro Ligario*, and one or two more; but the Greek must positively be the model; and merely reading it, as boys do, to know the language, won't do at all; he must enter into the spirit of each speech, thoroughly know the positions of the parties, follow each turn of the argument, and make the absolutely perfect and most chaste and severe composition familiar to his mind. His taste will improve every time he reads and repeats to himself (for he should have the fine passages by heart,) and he will learn how much may be done by a skillful use of a few words and a rigorous rejection of all superfluities. In this view I hold a familiar knowledge of Dante to be next to Demosthenes. It is in vain to say that imitations of these models will not do for our times. First, I do not counsel any imitation, but only an imbibing of the same spirit. Secondly, I know from experience that nothing is half so successful in these times (bad though they be) as what has been formed on the Greek models. I use a very poor instance in giving my own experience, but I do assure you that both in courts of law and Parliament, and even to mobs, I have never made so much play (to use a very modern phrase) as when I was almost translating from the Greek.

I commenced the peroration of my speech for the Queen, in the Lords, after reading and repeating Demosthenes for three or four weeks, and I composed it twenty times over at least, and it certainly succeeded in a very extraordinary degree, and far above any merits of its own. This leads me to remark, that though speaking, with writing beforehand, is very well until the habit of easy speech is acquired, yet after that he can never write too much; this is quite clear. It is laborious, no doubt, and it is more difficult beyond comparison than speaking off-hand; but it is necessary to perfect oratory, and at any rate it is necessary to acquire the habit of correct diction. But I go further, and say, even to the end of a man's life he must prepare word for word most of his finer passages. Now, would he be a great orator or no? In other words, would he have almost absolute power of doing good to mankind, in a free country or no? So he wills this, he must follow these rules.

Believe me truly yours,

H. BROUGHAM.

It is but reciting the ordinary praises of the art of persuasion, to remind you how sacred truths may be most ardently promulgated at the altar—the cause of oppressed innocence be most powerfully defended—the march of wicked rulers be most triumphantly resisted—defiance the most terrible be hurled at the oppressor's head. In great convulsions of public affairs, or in bringing about salutary changes, every one confesses how important an ally eloquence must be. But in peaceful times, when the progress of events is slow and even as the silent and unheeded pace of time, and the jars of a mighty tumult in foreign and domestic concerns can no longer be heard, then too she flourishes,—protectress of liberty,—patroness of improvement,—guardian of all the blessings that can be showered upon the mass of human kind; nor is her form ever seen but on ground consecrated to free institutions. "Pacis comes, otiique socia, et jam bene constitutæ reipublicæ alumna eloquentia." To me, calmly revolving these things, such pursuits seem far more noble objects of ambition than any upon which the vulgar herd of busy men lavish prodigal their restless exertions. To diffuse useful information,—to further intellectual refinement, sure forerunner of moral improvement,—to hasten the coming of the bright day when the dawn of general knowledge shall chase away the lazy, lingering mists, even from the base of the great social pyramid;—this indeed is a high calling, in which the most splendid talents and consummate virtue may well press onward, eager to bear a part.

Let me, therefore, indulge in the hope, that, among the illustrious youths whom this ancient kingdom famed alike for its nobility and its learning, has produced, to continue her fame through after ages, possibly among those I now address, there may be found some one—I ask no more—willing to give a bright example to other nations in a path yet untrodden, by taking the lead of his fellow-citizens,—not in frivolus amusements, nor in the degrading pursuits of the ambitious vulgar,—but in the truly noble task of enlightening the mass of his countrymen, and of leaving his own name no longer encircled, as heretofore, with barbaric splendor, or attached to courtly gewgaws, but illustrated by the honors most worthy of our rational nature—coupled with the diffusion of knowledge—and gratefully pronounced through all ages by millions whom his wise beneficence has rescued from ignorance and vice. This is the true mark for the aim of all who either prize the enjoyment of pure happiness, or set a right value upon a high and unsullied renown.—And if the benefactors of mankind, when they rest from their pious labors, shall be permitted to enjoy hereafter, as an appropriate reward of their virtue, the privilege of looking down upon the blessings with which their toils and sufferings have clothed the scene of their former existence; do not vainly imagine that, in a state of exalted purity and wisdom, the founders of mighty dynasties, the conquerors of new empires, or the more vulgar crowd of evil-doers, who have sacrificed to their own aggrandizement the good of their fellow-creatures, will be gratified by contemplating the monuments of their inglorious fame:—theirs will be the delight—theirs the triumph—who can trace the remote effects of their enlightened benevolence in the improved condition of their species, and exult in the reflection, that the prodigious change they now survey, with eyes that age and sorrow can make dim no more—of knowledge become power—virtue sharing in the dominion—superstition trampled under foot—tyranny driven from the world—are the fruits, precious, though costly, and though late reaped, yet long enduring, of all the hardships and all the hazards they encountered here below!—LORD BROUGHAM—*Inaugural Discourse at Glasgow as Lord Rector*, 1825

THE TEACHERS OF MANKIND.

Such men—men deserving the glorious title of Teachers of Mankind, I have found laboring conscientiously; though perhaps obscurely, in their blessed vocation, wherever I have gone. God be thanked, their numbers every where abound, and are every day increasing. Their calling is high and holy; their fame is the property of nations; their renown will fill the earth in after ages, in proportion as it sounds not far off in their own times. Each one of these great teachers of the world, possessing his soul in peace—performs his appointed course—awaiting in patience the fulfillment of the promises—resting from his labors, bequeathes his memory to the generations whom his works have blessed—and sleeps under the humble but not inglorious epitaph, commemorating one in whom mankind had a friend, and no man got rid of an enemy.—*Address at Corner Stone of Mechanics' Institute. Liverpool*, 1825.

WILLIAM PITT.—TRAINING FOR PUBLIC SPEAKING.

THE Letters addressed by Lord Chatham to his son, William Pitt, have not been preserved, or, at least, are not published in the Correspondence of the former, or in the Life of the latter, by Earl Stanhope. In this Life, and in an address to the University of Glasgow on the training of an orator, Earl Stanhope remarks:

> In 1803 my father, then Lord Mahon, had the high privilege, as a relative, of being for several weeks an inmate of Mr. Pitt's house, at Walmer Castle. Presuming on that familiar intercourse, he told me that he ventured on one occasion to ask Mr. Pitt by what means he had acquired his admirable readiness of speech—his aptness of finding the right word without pause or hesitation. Mr. Pitt replied, that whatever readiness he might be thought to possess in that respect, was, he believed, greatly owing to a practice which his father had impressed upon him. Lord Chatham had bid him take up any book in some foreign language with which he was well acquainted, in Latin or Greek especially. Lord Chatham then enjoined him to read out of this work a passage in English, stopping when he was not sure of the word to be used in English, until the right word came to his mind, and then proceed. Mr. Pitt said that he had assiduously followed this practice. We may conclude that, at first, he had often to stop for awhile before he could recollect the proper word, but that he found the difficulties gradually disappear, until what was a toil to him at first became at last an easy and familiar task.
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> To an orator, the charm of voice is of very far more importance than mere readers of speeches would find it easy to believe. I have known several speakers in whom that one advantage seemed almost to supply the place of every other. The tones of William Pitt were by nature sonorous and clear; and the further art, how to manage and modulate his voice to the best advantage, was instilled into him by his father with exquisite skill. Lord Chatham himself was preëminent in that art, as also in the graces of action, insomuch that these accomplishments have been sometimes imputed to him as a fault. In a passage of Horace Walpole, written with the manifest desire to disparage him, we find him compared to Garrick.
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> To train his son in sonorous elocution, Lord Chatham caused him to recite, day by day in his presence, passages from the best English poets. The two poets most commonly selected for this purpose were Shakspeare and Milton, and Mr. Pitt continued through life familiar with both. There is another fact which Lord Macaulay has recorded from tradition, and which I also remember to have heard: "The debate in Pandemonium was, as it well deserved to be, one of his favorite passages; and his early friends used to talk, long after his death, of the just emphasis and melodious cadence with which they had heard him recite the incomparable speech of Belial."
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> But whatever the studies of Pitt, whether in the ancient languages or in his own, the aim of public speaking was kept steadily in view. He continued with Mr. Pretyman the same practice of extemporaneous translation which, with his father, he had commenced. We further learn from his preceptor that "when alone he dwelt for hours upon striking passages of an orator or historian, in noticing their turn of expression, and marking their manner of arranging a narrative. A few pages sometimes occupied a whole morning. It was a favorite employment with him to compare opposite speeches upon the same subject, and to observe how each speaker managed his own side of the question. The authors whom he preferred for this purpose were Livy,

Thucydides, and Sallust. Upon these occasions, his observations were not unfrequently committed to paper, and furnished a topic of conversation with me at our next meeting. He was also in the habit of copying any eloquent sentence, or beautiful or forcible expression which occurred in his reading."

According to the unanimous assurance of those who knew him well, Mr. Pitt (the son) did not prepare the structure or the wording of his sentences, far less write them down beforehand. His own manuscript notes were very brief, and mainly confined to figures, to aid him in his financial statements.

CICERO.—PROFESSIONAL AND ORATORICAL TRAINING.

The following autobiographical account of Cicero's training for eloquence, both forensic and deliberative, is taken from his Treatise de Claris Oratoribus, entitled 'Brutus:'

When I became acquainted with the Roman Forum, Hortensius was at the height of his reputation, Crassus was dead, Cotta had been banished, and judicial proceedings were suspended in consequence of the war. Hortensius was in the army, performing his term of service, according to the Roman discipline, one year as a common soldier, another as a military tribune. Sulpicius was absent, as was also M. Antony. Trials were conducted under the Varian law alone, as there was occasion for no other, by reason of the war. L. Memmius and Q. Pompey were habitually present, and spoke as their manner was. They were not distinguished in their profession; but still they are honored with the title of orators by the eloquent Philip, according to whose testimony their speaking had the vehemence and fluency which belongs to the style of accusation.

The other most celebrated orators of the time were in office, and I had almost daily opportunities of hearing them speak in public. For C. Curio was then tribune of the people,—he, however, was not in the habit of speaking, since he had, on one occasion, been deserted by the whole assembly,—Q. Metellus Celer was not distinguished, but spoke occasionally. Q. Varius, C. Carbo, and Cn. Pomponius were distinguished orators, and may almost be said to have lived in the Forum. C. Julius, also, Curule Ædile, almost daily delivered speeches in a very accurate style. As I had been extremely desirous to hear Cotta, I regretted his banishment; still I attended on the speaking of the other orators with great zeal. In the meantime, I was not satisfied with hearing oratorical performances only, but passed no day without reading, writing, and meditation. The next year, Q. Varius was condemned to banishment under his own law. Moreover, I attended diligently to the study of the civil law under Q. Scævola, who, though he did not give formal instruction on the subject, yet permitted such as were desirous of learning to attend his consultations, and learn what they could in that way. The year succeeding, Sylla and Pompey were elected consuls, and P. Sulpicius tribune. With the oratorical style of the latter, I became intimately acquainted, as he spoke daily in some cause or other.

About the same time, Philo, the head of the Academy, and some of the principal men of Athens, left that city and came to Rome, being driven away by the Mithridatic war. To his instructions I devoted myself with the greatest ardor, not only because I was enthusiastically fond of philosophy itself, and delighted with the variety and importance of the subjects with which it made me acquainted, but because I was impressed with the belief that the whole judicial system was abolished forever. During this year, Sulpicius died. The next, three of the most distinguished orators, Q. Catulus, M. Antony, and C. Julius, were most cruelly put to death. This same year I also took lessons at Rome, of Molo, the Rhodian, who was both an eminent pleader at the bar and skilful teacher of rhetoric. Although this account of my studies may seem irrelevant to the object of this treatise, yet I have given it that you, Brutus (as it is already known to Atticus), might have your wish gratified, of being made perfectly acquainted with the course I have pursued, and that you might likewise see how closely I have followed the footsteps of Hortensius throughout the whole of it. For almost three years after this, the city was free from any disturbance; but by reason either of the death, or departure, or banishment of the public speakers (for even M. Crassus and the two Lentuli were not at Rome), Hortensius took the lead in pleading causes: the reputation, however, of Antistius daily increased; Piso spoke frequently; Pomponius not so often; Carbo seldom; Philip once or twice only.

During this whole period, I was engaged, night and day, in the assiduous study of every branch of knowledge. I used to be with Diodotus, the Stoic, who died lately at my house, where he had long resided. From him I learned, among other things, the principles of dialectics, which deserves to be considered as a more contracted and circumscribed eloquence, and without which you, too, Brutus, have judged it impossible to attain to that higher kind of eloquence which is regarded as only a diffusive or expanded dialectics. To this teacher, and to the various branches of knowledge he professed, I devoted myself; but not so exclusively as not to continue my oratorical exercises regularly every day. I studied and declaimed together, often with M. Piso and Q. Pompey, or with somebody else, sometimes in Latin, but more frequently in Greek, both because the Greek being richer in oratorical embellishments, naturally led to the same perfection in the use of the Latin language, and because I could not be instructed, nor have my errors corrected by Greek masters, unless I spoke Greek. In the meantime came the tumult about re-establishing the commonwealth, and the cruel deaths of Scævola, Carbo, Antistius; the return of Cotta, Curio, Crassus, the Lentuli, Pompey; law and judicature restored; the republic recovered; out of the number of orators, however, three perished—Pomponius, Censorinus, Murena. Then, for the first time, *we* began to be concerned in causes, both private and public; not to learn our business in the Forum, as many do, but that, as far as possible, we might go into it ready prepared. At the same time, *we* studied once more under Molo, who had come as ambassador to the Senate, touching the rewards of the Rhodians. Thus it was that *our* first speech in a public (or criminal) cause, that, namely, for Sextus Roscius, was so highly commended, that no undertaking of the kind was thought beyond our talents; and from that time forward we appeared in many others, in which we prepared ourselves elaborately, and even by midnight studies.

And since it is your wish to know me, not by a few prominent marks, but by a full-length portrait, I shall include some things in this account of myself which may, perhaps, seem to be of minor importance. I was, at that time, remarkably spare and feeble of body; with a long, attenuated neck, and, altogether, such a frame and constitution as is thought to make any extraordinary exertion of the lungs imminently dangerous. The concern of those to whom I was dear was so much the more increased, that I spoke always, without the least remission or variety, with my voice stretched to the utmost pitch, and my whole body laboring and agitated. So that my friends and the physicians advised me to abandon all idea of the Forum; but I thought it better to encounter any peril, than renounce the pursuit of that glory which I believed to be within my reach. And thinking that, by altering my manner of speaking, and modulating my voice with greater skill, I should at once avoid all danger, and improve my elocution,—with a view of effecting such a change, I determined to go to Asia. So, after having been engaged in practice as an advocate for two years, and when my name was now become celebrated in the Forum, I left Rome. At Athens, I staid six months, attending the prælections of Antiochus, the most renowned and able philosopher of the old Academy, and thus renewed, under the directions of a great master, the study of philosophy, which I had cultivated from my earliest youth, and progressively improved myself in ever since. At the same time, I used sedulously to practice speaking under Demetrius, the Syrian, an old and not undistinguished professor of the art. Afterwards, I traveled all over Asia, taking lessons of the greatest orators, with whom I exercised myself in the same way, by their own invitation. Of these, the most distinguished was Menippus of Stratonice; in my opinion, the best speaker of that day in all Asia; and, if to be entirely free from affectation and *impertinences* of all sorts (nihil habere molestiarum nec ineptiarum) is to be Attic, none was more so than this orator. Dionysius, also, was continually with me; as were Eschylus, the Cnidian, and Xenocles, of Adramyttium. These were then reckoned the principal speakers of Asia. But, not satisfied with their assistance, I went to Rhodes, and applied myself to the same Molo whom I had heard at Rome; who, whilst he was himself distinguished in the management of causes, and a writer of eminence, was the severest of critics in detecting and censuring any fault, and very able in the business of elementary instruction. He took particular pains (I will not say with what success) to prune away my style, which was redundant, and rioted in a sort of youthful luxuriance and licentiousness, and to keep it, so to express myself, within its banks. So that I returned, at the end of two years, not only better disciplined and practiced, but quite changed; for I had acquired a proper control of my voice, and what may be called the effervescence of my oratory had passed off, my lungs had gathered strength, and my whole constitution some small degree of vigor and consistency.

There were two orators, at that time preëminent, to excite my emulation,—Cotta and Hortensius: the former, pleasant and equable, expressing himself with great propriety, and with a careless ease and freedom; the other, ornate, animated, and not as you knew him, Brutus, when he was on the wane, but much more vehement, both in style and delivery. I, therefore, supposed that Hortensius was to be my principal rival, both as I resembled him more by the animation of my manner, and was nearer to him in age; and, besides that, in the most important causes the leading part was always conceded to him by Cotta himself; for a concourse of people, and the tumult of the Forum, require an impassioned and ardent speaker, with a musical voice, and an impressive and rather dramatic manner. In the course of the first year after my return from Asia, I pleaded several important causes whilst I was suing for the Quæstorship, Cotta for the Consulship, and Hortensius for the place of Ædile. The next year I passed in Sicily; Cotta, after his Consulship, went to Gaul; Hortensius was, and was reputed to be, first at the bar. When I came back from Sicily, my talent (whatever it was) seemed to have attained to its full maturity and perfection. I fear I am dwelling too long upon these things, especially as they concern myself; but my object in all that I have said, is not to make a boast of any genius and eloquence, which I am far from pretending to, but to show you what my labor and industry have been. After having been employed, then, for five years, in the most important causes, and among the leading advocates, I was fairly matched with Hortensius in the impeachment of Verres, just after he had been elected Consul, and I Ædile. But, as this conversation, besides a bare recital of facts, calls for some ideas upon the art, I will briefly state what I think was most remarkable in Hortensius. After his consulship (probably because he had no competitor among the Consulars, and he did not care about those who had not been Consuls), he relaxed from that application and study which had been so intense in him from his childhood, and, surrounded with the good things of life, he determined to live more happily, as he reckoned it, more at his ease, certainly. The first, and second, and third year, the coloring of his eloquence, like that of an old picture, began gradually to fade, so gradually, however, that an unpracticed eye could not detect the change, although connoisseurs might. As he grew older, he seemed to fall off every day, as in other respects, so particularly in the command of language. While, on the other hand, I did not for a moment neglect, by every sort of exercise, but, especially, by writing a great deal, to increase the talent, whatever it was, that I possessed in that way. Meanwhile (to omit other things), in the election of Prætors, I stood at the head of the college by a very large majority; for, not only by my industry and assiduity in the management of causes, but also by a more exquisite and an uncommon style of speaking, I had forcibly drawn the attention of men toward me. I will say nothing of myself. I shall confine myself to the rest of our public speakers, among whom there was none who seemed to have cultivated more thoroughly than other people, those literary studies in which the fountains of eloquence are contained; none who had made himself master of philosophy, mother both of good words and actions; none who was sufficiently versed in the civil law, a knowledge of which is so essential to an orator, especially in private causes; none who was so familiar with the Roman history, as to be able to call witnesses of high authority from the dead whenever need were; none who, when he had fairly caught his adversary in his toils, could relax the minds of the judges, and divert them for awhile from the severity of their character and situation, to mirth and laughter; none who could expatiate at large, and introduce into the discussion of a particular case, general views and universal principles; none who, to amuse an audience, could digress from the subject in hand, who could inflame their minds with anger, or melt them to tears,—none, in short, who possessed that control over the human soul, which is the peculiar privilege of the orator.

Eloquence Defined.

True eloquence I find to be none but the serious and hearty law of truth, and that whose mind soever is fully possessed with a fervent desire to know good things, and with the dearest charity to infuse the knowledge of them into others. When such a man would speak, his words, by what I can express, like so many nimble and airy servitors, trip about him at command, and in well-ordered files, as he would wish, fall aptly into their own places.—MILTON.

True eloquence, indeed, does not consist in speech. It must exist in the man, in the subject, and in the occasion.—WEBSTER.

ADVICE ON STUDIES AND CONDUCT,

BY MEN EMINENT IN LETTERS AND AFFAIRS.

GEORGE BERTHOLD NIEBUHR.

George Berthold Niebuhr, the Philologist, Diplomatist, and Historian, was born in Copenhagen, August 27, 1776, but his early years were spent in South Ditmash, where his father, Carsten Niebuhr, the celebrated traveler in the East, held an appointment from the Prussian government, and by whom he was principally instructed until he joined the university at Kiel in 1773. In 1795 he went to Edinburgh and pursued his studies for two years, including his visits to different parts of England. His professional studies were jurisprudence and finance, and for several years he was secretary of the Minister of Finance (Count Bermslorff) at Copenhagen, and one of the directors of the Bank. In 1806 he entered the Prussian service, was appointed one of the counselors of public affairs under Prince Hardenberg, in 1808 was sent as embassador to Holland and again in 1812, and 1816 as minister plenipotentiary to Rome. This last appointment was given in furtherance of his historical studies, to which he had devoted himself with great zeal, having given his first course of lectures on Roman History in the University of Berlin, in 1810, and published the first and second volumes of his History of Rome in 1811 and 1812. While at Rome he prosecuted his historical studies, examining ancient manuscripts, edited some unpublished manuscripts of Cicero and Livy, and made his house the resort of learned men and artists of all countries who congregate at Rome. In 1823 he retired to Bonn, and in the following years until his death, on the 2d of January, 1831, he continued to read lectures in the university on Roman History and Antiquities, Greek History, Ancient Geography and Statistics, and kindred subjects, and commenced rewriting his History of Rome, and a new edition of the Byzantine Historians. In his domestic and social relations, he was simple, affectionate, and influential. He loved to have students consult him in reference to their reading, and "I have found him," says Lieber in his Reminiscences, "repeatedly rolling on the ground with his children."

LETTER FROM BARTHOLD GEORGE NIEBUHR TO HIS NEPHEW, ON PHILOLOGICAL STUDIES.

[NIEBUHR, the historian, diplomatist, and philologist, addressed the following letter, while residing at Rome as Prussian Minister, to his nephew, then nineteen years of age. It is a precious manual of advice from a ripe scholar and an eminent statesman, not only on the intellectual processes of education, but on the true ideal of conduct—simplicity, energy, truthfulness—in every walk of life.]

When your dear mother wrote to me, that you showed a decided inclination for philological studies, I expressed my pleasure to her at the tidings; and begged her and your father not to cross this inclination by any plans they might form for your future life. I believe I said to her, that, as philology is the introduction to all other studies, he who pursues it in his school-years with eagerness, as if it were the main business of his life, prepares himself by so doing for whatever study he may choose at the university. And besides, philology is so dear to me, that there is no other calling I would rather wish for a young man for whom I have so great an affection as for you. No pursuit is more peaceful or cheering; none gives a better security for tranquillity of heart and of conscience, by the nature of its duties, and the manner of exercising them: and how often have I lamented with sorrow that I forsook it, and entered into a more bustling life, which perhaps will not allow me to attain to any lasting quiet, even when old age is coming on! The office of a schoolmaster especially is a thoroughly honorable one; and, notwithstanding all the evils which disturb its ideal beauty, truly for a noble heart one of the happiest ways of life. It was once the course I had chosen for myself; and it might have been better had I been allowed to follow it. I know very well, that, spoilt as I now am by the great sphere in which I have spent my active life, I should no longer be fitted for it; but for one whose welfare I have so truly at heart, I should wish that he might not be spoilt in the same manner, nor desire to quit the quietness and the secure narrow circle in which I, like you, passed my youth.

Your mother told me that you wanted to show me something of your writing, as a mark of your diligence, and in order that I might perceive what progress you have already made. I begged she would bid you do so, not only that I might give you and your friends a proof of the sincere interest I take in you; but also because in philology I have a tolerably clear knowledge of the end to be aimed at, and of the paths which lead to it, as well as of those which tempt us astray: so that I can encourage any one who has had the good fortune to enter on one of the former, while I feel the fullest confidence in warning such as are in danger of losing their way, and can tell them whither they will get unless they turn back. I myself had to make my way through a thorny thicket, mostly without a guide; and, alas, at times in opposition to the cautions given me but too forbearingly by those who might have been my guides. Happily—I thank God for it—I never lost sight of the end, and found the road to it again; but I should have got much nearer that end, and with less trouble, had the road been pointed out to me.

I tell you with pleasure, and can do so with truth, that your composition is a creditable proof of your industry; and that I am very glad to see how much you have studied and learnt in the six years since I last saw you. I perceive you have read much, and with attention and a desire of knowledge. In the first place however, I must frankly beg you to examine your Latin, and to convince yourself that in this respect much is wanting. I will not lay a stress on certain grammatical blunders: on this point I agree entirely with my dear friend Spalding, whom such blunders in his scholars did not provoke, provided his pointing them out availed by degrees to get rid of them. A worse fault is, that you have more than once broken down in a sentence; that you employ words in an incorrect sense; that your style is turgid and without uniformity; that you use your metaphors illogically. You do not write simply enough to express a thought unpretendingly, when it stands clearly before your mind. That your style is not rich and polished is no ground for blame; for although there have been some, especially in former times, who by a peculiarly happy management of a peculiar talent have gained such a style at your age, yet in ordinary cases such perfection is quite unattainable. Copiousness and nicety of expression imply a maturity of intellect, which can only be the result of a progressive development. But what every one can and ought to do, is, not to aim at an appearance of more than he really understands; but to think and express himself simply and correctly. Here, therefore, take a useful rule. When you are writing a Latin essay, think what you mean to say with the utmost distinctness you are capable of, and put it into the plainest words. Study the structure of the sentences in great writers; and exercise yourself frequently in imitating some of them: translate passages so as to break up the sentences; and when you translate them back again, try to restore the sentences. In this exercise you will not need the superintendence of your teacher; do it, however, as a preparation for the practice of riper years. When you are writing, examine carefully whether your language be of one color. It matters not to my mind, whether you attach yourself to that of Cicero and Livy, or to that of Tacitus and Quintilian: but one period you must choose: else the result is a motley style, which is as offensive to a sound philologer, as if one were to mix up German of 1650 and of 1800.

You were very right not to send the two projected essays which you mention; because you can not possibly say any thing sound on such questions. Dissertations on particular points can not be written, until we have a distinct view of the whole region wherein they are comprised, until we can feel at home there, and moreover have a sufficient acquaintance with all their bearings upon other provinces of knowledge. It is quite another matter, that we must advance from the special to the general, in order to gain a true understanding of a complex whole. And here we need not follow any systematic order, but may give way to our accidental inclinations, provided we proceed cautiously, and do not overlook the gaps which remain between the several parts.

You have undertaken to write about the Roman colonies, and their influence on the state. Now it is quite impossible that you can have so much as a half-correct conception of the Roman colonies; and to write about their influence on the state, you should not only accurately understand the constitution of Rome and its history, but should be acquainted with the principles and history of politics; all of which as yet is impossible. When I say this, I will add, that none of us, who are entitled to the name of philologers, could have treated this subject at your age; not even Grotius, or Scaliger, or Salmasius, who were excellent grammarians so much earlier than any of us. Still less suited to you is your second subject. You must know enough of antiquity to be aware that the philosophy of young men, down to a much riper age than yours, consisted in silent listening, in endeavoring to understand and to learn. You can not even have an acquaintance with the facts, much less carry on general reflections,—to let pass the word *philosophical*,—on questions of minute detail, mostly problematical. To learn, my dear friend, to learn conscientiously,—to go on sifting and increasing our knowledge,—this is our speculative calling through life: and it is so most especially in youth, which has the happiness that it may give itself up without hinderance to the charms of the new intellectual world opened to it by books. He who writes a dissertation,—let him say what he will,—pretends to teach: and one can not teach without some degree of wisdom; which is the amends that, if we strive after it, God will give us for the departing bliss of youth.

What I wish above all things to impress on you, my young friend, is, that you should purify your mind to entertain a sincere reverence for every thing excellent. This is the best dower of a youthful spirit, its surest guide.

I must now say something more to you about your style of writing. It is too verbose; and you often use false metaphors. Do not suppose that I am unreasonable enough to require a finished style. I expect not such from you, nor from any one at your age; but I would warn you against a false mannerism. All writing should merely be the expression of thought and speech. A man should either write just as he actually delivers a continuous discourse, expressing his genuine thoughts accurately and fully; or, as he would speak, if placed in circumstances, in which in real life he is not placed, where he might be called upon to do so. Every thing should spring from thought; and the thoughts should fashion the structure of the words. To be able to do this, we must study language, must enrich our memory with an abundant supply of words and phrases, whether in our mother tongue, or in foreign tongues, living or dead, must learn to define words precisely, and to determine the idiomatic meaning of phrases, and their limits. The written exercises of a boy or lad should have no other object than to develop his power of thinking, and to enrich and purify his language. If we are not content with our thoughts,—if we twist and turn about under a feeling of our emptiness, writing becomes terribly up-hill work, and we have hardly courage to persevere in it. This was my case at your age, and long after. There was no one who would enter into my distress and assist me; which in my youth would have been easy.

Above all things, however, in every branch of literature and science, must we preserve our truth so pure, as utterly to shun all false show,—so as never to assert any thing, however slight, for certain, of which we are not thoroughly convinced,—so as to take the utmost pains, when we are expressing a conjecture, to make the degree of our belief apparent. If we do not, where is it possible, ourselves point out defects which we perceive, and which others are not likely to discover,—if, when we lay down our pen, we can not say, in the presence of God, *I have written nothing knowingly, which, after a severe examination, I do not believe to be true; in nothing have I deceived my reader, either with regard to myself or others; nor have I set my most odious adversary in any other light than I would answer for at my last hour*,—if we can not do this, learning and literature make us unprincipled and depraved.

Here I am conscious that I demand nothing from others, of which a higher spirit, reading my soul, could reproach me with ever having done the reverse. This scrupulousness, combined with my conception of what a philologer can and ought to be, if he comes before the world, and with my reverence for great scholars, made me so reluctant, long after I had attained to manhood, to appear with any work. Though often urged to do so, not without reproaches, by my friends, I felt that my hour was not yet come; which, had my life taken another course, might have come several years earlier.

From a young man, were it merely as an exercise of honesty, I demand the most scrupulous truth in literature, as in all other things, absolutely and without exception; so that it may become an integral part of his nature; or rather, that the truth, which God planted in his nature, may abide there. By it alone can we fight our way through the world. The hour when my Marcus should say an untruth, or give himself the show of a merit which he had not, would make me very unhappy.

I come now to another part of my task of giving you advice. I wish you were not so fond of satires, even of Horace's. Turn to those works which elevate the heart, in which you see great men and great events, and live in a higher world: turn away from those which represent the mean and contemptible side of ordinary relations and degenerate ages. They are not fitted for the young; and the ancients would not have let them fall into your hands. Homer, Æschylus, Sophocles, Pindar,—these are the poets for youth, the poets with whom the great men of antiquity nourished themselves; and as long as literature shall give light to the world, they will ennoble the youthful souls, that are filled with them, for life. Horace's Odes, as copies of Greek models, are also good reading for the young; and I regret that it is become the practice to depreciate them, which only a few masters are entitled to do, or can do without arrogance. In his Epistles, Horace is original, and more genial; but he who reads them intelligently, reads them with sorrow; they can not do good to any one. We see a man of noble disposition, but who, from inclination and reflection, tries to adapt himself to an evil age, and who has given himself up to a vile philosophy, which does not prevent his continuing noble, but lowers all his views. His morality rests on the principle of suitableness, decorum, reasonableness: he declares expediency (to take the most favorable expression) to be the source of the idea of right (Sat. I. iii. 98.) Baseness discomposes him, and excites him, not to anger, but to a slight chastisement. That admiration for virtue, which constrains us to scourge vice, and which we see not only in Tacitus, but also in Juvenal,—in the latter disgustingly,—is not found in Horace. Juvenal, however, you must not read yet, with the exception of a few pieces: nor is this any loss; for even if you might be allowed to read him, it would not be wholesome at your age, to dwell on the contemplation of vice, instead of enriching your mind with great thoughts.

To these poets, and among prose writers to Herodotus, Thucydides, Demosthenes, Plutarch, Cicero, Livy, Cæsar, Sallust, Tacitus, I earnestly entreat you to turn, and to keep exclusively to them. Do not read them to make esthetical remarks on them, but to read yourself into them, and to fill your soul with their thoughts, that you may gain by their reading, as you would gain by listening reverently to the discourses of great men. This is the philology which does one's soul good: learned investigations, when one has attained to the capacity of carrying them on, still are only of secondary value. We must be accurately acquainted with grammar, according to the ancient, wide acceptation of that term: we must acquire all branches of archæology, so far as lies in our power. But even though we were to make the most brilliant emendations, and could explain the most difficult passages off hand, this is nothing but mere trickery, unless we imbibe the wisdom and the magnanimity of the great ancients, feel like them, and think like them.

For the study of language, I recommend you, above all, Demosthenes and Cicero. Take the speech of the former *for the Crown*, that of the latter *pro Cluentio*, and read them with all the attention you are master of. Then go through them, giving account to yourself of every word, of every phrase. Draw up an argument: try to get a clear view of all the historical circumstances, and to arrange them in order. This will give you an endless work; and hence you will learn how little you can, and consequently do yet know. Then go to your teacher,—not to surprise him with some unexpectedly difficult questions (for in the speech for Cluentius there are difficulties with regard to the facts, which, even after the longest familiarity with it, can only be solved by conjectures, such as will not occur to the best scholar at the moment) but that he may have the kindness to consider the passages, and to consult the commentators for you, where your powers and means are at fault. Construct a sketch of the procedure in the accusation against Cluentius. Make a list of the expressions, especially epithets and the nouns they are applied to, and mark the key of the metaphors. Translate passages; and a few weeks after, turn your translation back into the original tongue.

Along with this grammatical exercise, read those great writers, one after the other, with more freedom. But after finishing a book, or a section, recall what you have been reading in your memory, and note down the substance as briefly as you can. Note also the phrases and expressions which recur to you the most forcibly; and you should always write down every new word you meet with immediately, and read over the list in the evening.

Leave the commentators and emendators for the present unread. The time will come, when you may study them to advantage. A painter must first learn to draw, before he begins to use colors: and he must know how to handle the ordinary colors, before he decides for or against the use of ultramarines. Of writing I have already spoken to you. Keep clear of miscellaneous reading, even of the ancient authors: among them too there are many bad ones. Æolus only let the one wind blow, which was to bear Ulysses to his goal: the others he tied up: when let loose, and crossing each other, they occasioned him endless wanderings.

Study history in two ways, according to persons, and according to states. Often make synchronistical surveys.

The advice which I give you, I would give to any one in your place. The blame I should have to give to very many. Do not fancy that I don't know this, or that I do not willingly take account of your industry according to its deserts.

The study which I require of you will make no show, will advance slowly: and it will perhaps discourage you to find that many years of studentship are still before you. But, my friend, true learning and true gain are the real blessings of speculative life; and our lifetime is not so short. Still, however long it may be, we shall always have more to learn: God be praised that it is so!

And now, may God bless your labors, and give you a right mind, that you may carry them on to your own welfare and happiness, to the joy of your parents and of us all, who have your virtue and respectability at heart.

"A bad handwriting ought never to be forgiven. Sending a badly written letter to a fellow-creature is as impudent an act as I know of. Can there be any thing more unpleasant, than to open a letter which at once shows that it will require long deciphering? Besides, the effect of the letter is gone, if we must spell it. Many applications for aid, positions, and coöperation are prejudiced and even thrown aside, merely because they are written so badly."

"Writing seems to me just like dressing; we ought to dress well and neat; but as we may dress too well, so may a pedantically fine hand show that the writer has thought more of the letters than the sense."—*Conversation—in Lieber's Reminiscences of Niebuhr.*

STUDIES AND CONDUCT.

CONVERSATION—AS A PART OF EDUCATION.

LORD BACON. ESSAY.—ON DISCOURSE.

SOME in their discourse desire rather commendation of wit, in being able to hold all arguments, than of judgment, in discerning what is true, as if it were a praise to know what might be said, and not what should be thought. Some have certain common places and themes wherein they are good, and want variety; which kind of poverty is for the most part tedious, and when it is once perceived—ridiculous. The honorablest part of the talk is to give the occasion, and again to moderate and pass to somewhat else, for then a man leads the dance. It is good in discourse and speech of conversation to vary and intermingle speech of the present occasion with arguments, tales with reasons, asking of questions with telling of opinions, and jest with earnest, for it is a dull thing to tire, and as we say now, to jade (*over-ride or drive*) anything too far. As for jest, there be certain things which ought to be privileged from it—namely: religion, matters of state, great persons, any man's present business of importance, and any case that deserveth pity; yet there be some that think their wits have been asleep except they dart out somewhat that is piquant, and to the quick—that is a vein which would be bridled—

> "Parce puer stimulus, et fortius utere loris."
> (Boy, spare the spur, and more tightly hold the reins.—Ovid Met. ii. 127).

And, generally, men ought to find the difference between saltness and bitterness. Certainly, he that hath a satirical vein as he maketh others afraid of his wit, so he had need be afraid of other's memory. He that questioneth much shall learn much, and content much, but especially if he apply his questions to the skill of the persons whom he asketh, for he shall give them occasion to please themselves in speaking, and himself shall continually gather knowledge; but let his questions not be troublesome, for that is fit for a poser (*over nice examiner*), and let him be sure to leave other men their turns to speak; nay, if there be any that would reign, and take up all the time, let him find means to take them off, and bring others on, as musicians used to do with those that dance too long galliards (*merry measure*). If you dissemble, sometimes your knowledge of that (*that which*) you are thought to know, you shall be thought another time to know that you know not. Speech of man's self ought to be seldom, and well-chosen. I knew one was wont to say in scorn, "He must needs be a wise man, he speaks so much of himself," and there is but one case wherein a man may commend himself with a good grace, and that is in commending virtue in another, especially if it be a virtue whereunto himself pretendeth (*lay claim to*). Speech of touch (*particular application*) towards others should be sparingly used, for discourse ought to be as a field, without coming home to any man. I knew two noblemen of the west part of England, whereof the one was given to scoff, but kept ever royal cheer in his house: the other would ask of those that had been at the other's table, "Tell truly was there never a flout (*jeer*) or dry blow given?" To which the guest would answer "Such and such a thing passed." The lord would say, "I thought he would mar a good dinner." Discretion of speech is more than eloquence, and to speak agreeably (*in a manner suited*) to him with whom we deal, is more than to speak in good words and in good order. A good continued speech, without a good speech of interlocution, shows slowness, and a good reply, or second speech, without a good settled speech, showeth shallowness and weakness. As we see in beasts, that those that are weakest in the course are yet nimblest in the turn, as it is betwixt the greyhound and the hare. To use too many circumstances (*non-essential particulars*) ere one come to the matter is wearisome: to use none at all is blunt.

Archbishop Whately in his annotations to the above Essay remarks:-

> Among the many just and admirable remarks in this essay on "Discourse," Bacon does not notice the distinction—which is an important one—between those who speak because they wish to say something, and those who speak because they have something to say: that is, between those who are aiming at displaying their own knowledge or ability, and those who speak from fulness of matter, and are thinking only of the matter, and not of themselves and the opinion that will be formed of them. This latter Bishop Butler calls (in reference to writings) "a man's writing with simplicity and in earnest." It is curious to observe how much more agreeable is even inferior conversation of this latter description, and how it is preferred by many—they know not why—who are not accustomed to analyse their own feelings, or to enquire why they like or dislike.
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> Something nearly coinciding with the above distinction, is that which some draw between an "unconscious" and a "conscious" manner, only that the latter extends to persons who are not courting applause, but anxiously guarding

against censure. By a "conscious" manner is meant, in short, a continued thought about oneself, and about what the company will think of us. The continued effort and watchful care on the part of the speaker, either to obtain approbation, or at least to avoid disapprobation, always communicates itself in a certain degree to the hearers.

Some draw a distinction again, akin to the above, between the desire to please and the desire to give pleasure; meaning by the former an anxiety to obtain for yourself the good opinion of those you converse with, and by the other, the wish to gratify them.

Aristotle, again draws the distinction between the Eiron and the Bomolochus —that the former seems to throw out his wit for his own amusement, and the other for that of the company. It is this latter, however, that is really the "conscious" speaker, because he is evidently seeking to obtain credit as a wit by his diversion of the company. The word seems nearly to answer to what we call a "wag." The other is letting out of his good things merely from his own fulness.

When that which has been called "consciousness" is combined with great timidity, it constitutes what we call "shyness," a thing disagreeable to others, and a most intense torture to the subject of it.

There are many (otherwise) sensible people who seek to cure a young person of that very common complaint by *exhorting* him not to be shy,—telling him what an awkward appearance it has,—and that it prevents his doing himself justice, &c. All which is manifestly pouring oil on the fire to quench it. For, the very cause of shyness is an over-anxiety as to what people are thinking of you; a morbid attention to your own appearance. The course, therefore, that ought to be pursued is exactly the reverse. The sufferer should be exhorted to think as little as possible about himself, and the opinion formed of him—to be assured that most of the company do not trouble their heads about him—and to harden him against any impertinent criticisms that may be supposed to be going on—taking care only to do what is right, leaving others to think and say what they will.

And the more intensely occupied any one is with the subject matter of what he is saying, the business itself that he is engaged in, the less will his thoughts be turned on himself, and what others think of him.

DEAN SWIFT. HINTS TOWARD AN ESSAY ON CONVERSATION.

I HAVE observed few obvious subjects to have been so seldom, or at least so slightly, handled as this; and indeed I know few so difficult to be treated as it ought, nor yet upon which there seems so much to be said.

Most things pursued by men for the happiness of public or private life, our wit or folly have so refined, that they seldom subsist but in idea; a true friend, a good marriage, a perfect form of government, with some others, require so many ingredients, so good in their several kinds, and so much niceness in mixing them, that for some thousands of years men have despaired of reducing their schemes to perfection: but in conversation it is, or might be, otherwise; for here we are only to avoid a multitude of errors, which, although a matter of some difficulty, may be in every man's power, for want of which it remains as mere an idea as the other. Therefore it seems to me, that the truest way to understand conversation, is to know the faults and errors to which it is subject, and from thence every man to form maxims to himself whereby it may be regulated, because it requires few talents to which most men are not born, or at least may not acquire, without any great genius or study. For nature has left every man a capacity of being agreeable, though not of shining in company; and there are a hundred men sufficiently qualified for both, who, by a very few faults that they might correct in half an hour, are not so much as tolerable.

I was prompted to write my thoughts upon this subject by mere indignation, to reflect that so useful and innocent a pleasure, so fitted for every period and condition of life, and so much in all men's power, should be so much neglected and abused.

And in this discourse it will be necessary to note those errors that are obvious, as well as others which are seldomer observed, since there are few so obvious, or acknowledged, into which most men, some time or other, are not apt to run.

For instance: nothing is more generally exploded than the folly of talking too much; yet I rarely remember to have seen five people together, where some one among them has not been predominant in that kind, to the great constraint and disgust of all the rest. But among such as deal in multitudes of words, none are comparable to the sober deliberate talker, who proceeds with much thought and caution, makes his preface, branches out into several digressions, finds a hint that puts him in mind of another story, which he promises to tell you when this is done; comes back regularly to his subject, cannot readily call to mind some person's name, holding his head, complains of his memory; the whole company all this while in suspense; at length says, it is no matter, and so goes on. And, to crown the business, it perhaps proves at last a story the company has heard fifty times before; or, at best, some insipid adventure of the relater.

Another general fault in conversation is that of those who affect to talk of themselves: some, without any ceremony, will run over the history of their lives; will relate the annals of their diseases, with the several symptoms and circumstances of them; will enumerate the hardships and injustice they have suffered in court, in parliament, in love, or in law. Others are more dexterous, and with great art will lie on the watch to hook in their own praise: they will call a witness to remember they always foretold what would happen in such a case, but none would believe them; they advised such a man from the beginning, and told him the consequences, just as they happened; but he would have his own way. Others make a vanity of telling their faults; they are the strangest men in the world, they cannot dissemble; they own it is a folly; they have lost abundance of advantages by it, but if you would give them the world, they cannot help it; there is something in their nature that abhors insincerity and constraint; with many other insufferable topics of the same altitude.

Of such mighty importance every man is to himself, and ready to think he is so to others; without once making this easy and obvious reflection, that his affairs can have no more weight with other men, then theirs have with him; and how little that is, he is sensible enough.

Where a company has met, I often have observed two persons discover, by some accident, that they were bred together at the same school or university; after which the rest are condemned to silence, and to listen while these two are refreshing each other's memory, with the arch tricks and passages of themselves and their comrades.

I know a great officer of the army who will sit for some time with a supercilious and impatient silence, full of anger and contempt for those who are talking; at length of a sudden, demanding audience, decide the matter in a short dogmatical way; then withdraw within himself again, and vouchsafe to talk no more, until his spirits circulate again to the same point.

There are some faults in conversation which none are so subject to as the men of wit, nor ever so much as when they are with each other. If they have opened their mouths without endeavoring to say a witty thing, they think it is so many words lost: it is a torment to their hearers, as much as to themselves, to see them upon the rack for invention, and in perpetual constraint, with so little success. They must do something extraordinary in order to acquit themselves, and answer their character, else the standers-by may be disappointed, and be apt to think them only like the rest of mortals. I have known two men of wit industriously brought together in order to entertain the company, where they have made a very ridiculous figure, and provided all the mirth at their own expense.

I know a man of wit who is never easy but where he can be allowed to dictate and preside: he neither expects to be informed or entertained, but to display his own talents. His business is to be good company, and not good conversation; and therefore he chooses to frequent those who are content to listen, and to profess themselves his admirers. And indeed the worst conversation I ever remember to have heard in my life was that at Will's coffee-house, where the wits (as they were called) used formerly to assemble; that is to say, five or six men who had writ plays, or at least prologues, or had share in a miscellany, came thither, and entertained one another with their trifling composures, in so important an air as if they had been the noblest efforts of human nature, or that the fate of kingdoms depended on them; and they were usually attended with an humble audience of young students from the inns of court, or the universities; who, at due distance, listened to these oracles, and returned home with great contempt for their law and philosophy, their heads filled with trash, under the name of politeness, criticism, and belles lettres.

By these means the poets, for many years past, were all overrun with pedantry. For, as I take it, the word is not properly used; because pedantry is the too frequent or unseasonable obtruding our own knowledge in common discourse, and placing too great a value upon it; by which definition, men of the court, or the army, may be as guilty of pedantry as a philosopher or a divine; and it is the same vice in women, when they are over-copious upon the subject of their petticoats, or their fans, or their china. For which reason, although it be a piece of prudence, as well as good manners, to put men upon talking on subjects they are best versed in, yet that is a liberty a wise man could hardly take; because, beside the imputation of pedantry, it is what he would never improve by.

The great town is usually provided with some player, mimic, or buffoon, who has a general reception at the good tables; familiar and domestic with persons of the first quality, and usually sent for at every meeting to divert the company; against which I have no objection. You go there as to a farce or a puppet-show; your business is only to laugh in season, either out of inclination or civility, while this merry companion is acting his part. It is a business he has undertaken, and we are to suppose he is paid for his day's work. I only quarrel, when, in select and private meetings, where men of wit and learning are invited to pass an evening, this jester should be admitted to run over his circle of tricks, and make the whole company unfit for any other conversation, beside the indignity of confounding men's talents at so shameful a rate.

Raillery is the finest part of conversation; but, as it is our usual custom to counterfeit and adulterate whatever is too dear for us, so we have done with this, and turned it all into what is generally called repartee, or being smart; just as when an expensive fashion comes up, those who are not able to reach it, content themselves with some paltry imitation. It now passes for raillery to run a man down in discourse, to put him out of countenance and make him ridiculous; sometimes to expose the defects of his person or understanding; on all which occasions, he is obliged not to be angry, to avoid the imputation of not being able to take a jest. It is admirable to observe one who is dexterous at this art, singling out a weak adversary, getting the laugh on his side, and then carrying all before him. The French, from whence we borrow the word, have a quite different idea of the thing, and so had we in the politer age of our fathers. Raillery was to say something that at first appeared a reproach or reflection, but, by some turn of wit, unexpected and surprising, ended always in a compliment, and to the advantage of the person it was addressed to. And surely one of the best rules in conversation is, never to say a thing which any of the company can reasonably wish we had rather left unsaid: nor can there anything be well more contrary to the ends for which people meet together, than to part unsatisfied with each other or themselves.

There are two faults in conversation, which appear very different, yet arise from the same root, and are equally blameable; I mean an impatience to interrupt others; and the uneasiness of being interrupted themselves. The two chief ends of conversation are to entertain and improve those we are among, or to receive those benefits ourselves; which, whoever will consider, cannot easily run into either of these two errors; because, when any man speaks in company, it is to be supposed he does it for his hearers' sake, and not his own; so that common discretion will teach us not to force their attention, if they are not willing to lend it; nor, on the other side, to interrupt him who is in possession, because that is in the grossest manner to give the preference to our own good sense.

There are some people whose good manners will not suffer them to interrupt you, but, what is almost as bad, will discover abundance of impatience, and lie upon the watch until you have done, because they have started something in their own thoughts, which they long to be delivered of. Meantime, they are so far from regarding what passes, that their imaginations are wholly turned upon what they have in reserve, for fear it should slip out of their memory; and thus they confine their invention, which might otherwise range over a hundred things full as good, and that might be much more naturally introduced.

There is a sort of rude familiarity, which some people, by practising among their intimates, have introduced into their general conversation, and would have it pass for innocent freedom of humor; which is a dangerous experiment in our northern climate, where all the little decorum and politeness we have are purely forced by a trand, are so ready to lapse into barbarity. This, among the Romans, was the raillery of slaves, of which we have many instances in Plautus. It seems to have been introduced among us by Cromwell, who, by preferring the scum of the people, made it a court entertainment, of which I have heard many particulars; and considering all things were turned upside-down, it was reasonable and judicious: although it was a piece of policy found out to ridicule a point of honor in the other extreme, when the smallest word misplaced among gentlemen ended in a duel.

There are some men excellent at telling a story, and provided with a plentiful stock of them, which they can draw out upon occasion in all companies; and, considering how low conversation runs now among us, it is not altogether a contemptible talent; however, it is subject to two unavoidable defects, frequent repetition, and being soon exhausted; so that, whoever values this gift in himself, has need of a good memory, and ought frequently to shift his company, that he may not discover the weakness of his fund; for those who are thus endued have seldom any other revenue, but live upon the main stock.

Great speakers in public are seldom agreeable in private conversation, whether their faculty be natural, or acquired by practice, and often venturing. Natural elocution, although it may seem a paradox, usually springs from a barrenness of invention, and of words; by which men who have only one stock of notions upon every subject, and one set of phrases to express them in, they swim upon the superfices, and offer themselves on every occasion; therefore men of much learning, and who know the compass of a language, are generally the worst talkers on a sudden, until much practice has inured and emboldened them; because they are confounded with plenty of matter, variety of notions and of words, which they cannot readily choose, but are perplexed and entangled by too great a choice; which is no disadvantage in private conversation; where, on the other side, the talent of haranguing is, of all others, most unsupportable.

Nothing has spoiled men more for conversation than the character of being wits; to support which they never fail of encouraging a number of followers and admirers, who list themselves in their service, wherein they find their accounts on both sides by pleasing their mutual vanity. This has given the former such an air of superiority, and made the latter so pragmatical, that neither of them are well to be endured. I say nothing here of the itch of dispute and contradiction, telling of lies, or of those who are troubled with the disease called the wandering of the thoughts, so that they are never present in mind at what passes in discourse; for whoever labors under any of these possessions, is as unfit for conversation as a madman in Bedlam.

I think I have gone over most of the errors in conversation that have fallen under my notice or memory, except some that are merely personal, and others too gross to need exploding; such as lewd or profane talk; but I pretend only to treat the errors of conversation in general, and not the several subjects of discourse, which would be infinite Thus we see how human nature is most debased, by the abuse of that faculty which is held the great distinction between men and brutes: and how little advantage we make of that, which might be the greatest, the most lasting, and the most innocent, as well as useful pleasure of life: in default of which we are forced to take up with those poor amusements of dress and visiting, or the more pernicious ones of play, drink, and vicious amours; whereby the nobility and gentry of both sexes are entirely corrupted, both in body and mind, and have lost all notions of love, honor, friendship, generosity: which, under the name of fopperies, have been for some time laughed out of doors.

This degeneracy of conversation, with the pernicious consequences thereof upon our humors and dispositions, has been owing, among other causes, to the custom arisen, for some time past, of excluding women from any share in our society, further than in parties at play or dancing, or in the pursuit of an amour.

I take the highest period of politeness in England (and it is of the same date in France) to have been the peaceable part of king Charles I.'s reign, and from what we read of those times, as well as from the accounts I have formerly met with from some who lived in that court, the methods then used for raising and cultivating conversation were altogether different from ours: several ladies, whom we find celebrated by the poets of that age, had assemblies at their houses, where persons of the best understanding, and of both sexes, met to pass the evenings in discoursing upon whatever agreeable subjects were occasionally started; and although we are apt to ridicule the sublime Platonic notions they had, or personated, in love and friendship, I conceive their refinements were grounded upon reason, and that a little grain of the romance is no ill ingredient to preserve and exalt the dignity of human nature, without which it is apt to degenerate into everything that is sordid, vicious, and low. If there were no other use in the conversation of ladies, it is sufficient that it would lay a restraint upon those odious topics of immodesty and indecencies, into which the rudeness of our northern genius is apt to fall. And, therefore, it is observable in those sprightly gentlemen about the town, who are so very dexterous at entertaining a vizard mask in the park or the playhouse, that in the company of ladies of virtue and honor, they are silent and disconcerted, and out of their element.

There are some people who think they sufficiently acquit themselves, and entertain their company, with relating facts of no consequence, nor at all out of the road of such common incidents as happen every day; and this I have observed more frequently among the Scots than any other nation, who are very careful not to omit the minutest circumstances of time or place; which kind of discourse, if it were not a little relieved by the uncouth terms and phrases, as well as accent and gesture peculiar to that country, would be hardly tolerable. It is not a fault in company to talk much; but to continue it long is certainly one; for, if the majority of those who are got together be naturally silent or cautious, the conversation will flag, unless it be often renewed by one among them, who can start new subjects, provided he does not dwell upon them, that leave room for answers and replies.

The first thing to consider in falling into conversation with any one is, whether he has a greater inclination to hear you, or that you should hear him.—*Steele.*

In conversation, humor is more than wit, easiness more than knowledge; few desire to learn, or think they need it; all desire to be pleased, or if not, to be easy.—*Sir William Temple.*

He who sedulously attends, pointedly asks, cooly answers, calmly speaks, and ceases when he has nothing to say, is in possession of the best requisites of a good converser.—*Lavater.*

The listening well and answering well is one of the perfections to be attained in conversation.—*Le Rochefoucauld.*

We should bring into society our proportion of good will or good humor, and not trouble our friends with our real or imaginary afflictions. Cares, distresses, diseases, animosities, and dislikes should not be obtruded on others who have little sorrows enough of their own; and valetudinarians should be sworn before they enter into company not to say a word of themselves until the meeting breaks up.—*Addison.*

Self is a subject on which all are fluent and few interesting.—*Byron.*

CONVERSATION—AN ART.

LETTER OF THOMAS DeQUINCEY TO A YOUNG FRIEND.—*Abridged.*

AMONGST the arts connected with the *elegances* of social life, in a degree which nobody denies, is the art of Conversation; but in a degree which almost everybody denies, if one may judge by their neglect of its simplest rules, this same art is not less connected with the *uses* of social life. Neither the luxury of conversation, nor the possible benefit of conversation, is to be under that rude administration of it which generally prevails. Without an art, without some simple system of rules, gathered from experience of such contingencies as are most likely to mislead the practice, when left to its own guidance, no art of man nor effort accomplishes its purposes in perfection. Yet for conversation, the great paramount purpose of social meetings, no art exists or has been attempted.

That seems strange, but is not entirely so. A limited process submits readily to the limits of technical system; but a process so unlimited as the interchange of thought, seems to reject them. And even if an art of conversation were less unlimited, the means of carrying such an art into practical effect, amongst so vast a variety of minds, seem wanting. Yet again, perhaps, after all, this may rest on a mistake. What we begin by misjudging is the particular phasis of conversation which brings it under the control of art and discipline. It is not in its relation to the intellect that conversation has been improved or *will* be improved primarily, but in its relation to manners. Has a man ever mixed with what in technical phrase is called "good company," meaning company in the highest degree polished, company which (being or *not* being aristocratic as respects its composition) is aristocratic as respects the standard of its manners and usages? If he really *has*, and does not deceive himself from vanity or from pure acquaintance with the world, in that case he must have remarked the large effect impressed upon the grace and upon the freedom of conversation by a few simple instincts of real good breeding. Good breeding—what is it? There is no need in this place to answer that question comprehensively; it is sufficient to say, that it is made up chiefly of *negative* elements; that it shows itself far less in what it prescribes, than in what it forbids. Now, even under this limitation of the idea, the truth is, that more will be done for the benefit of conversation by the simple magic of good manners (that is, chiefly by a system of forbearances), applied to the besetting vices of social intercourse, than ever *was* or *can* be done by all varieties of intellectual power assembled upon the same arena. Intellectual graces of the highest order may perish and confound each other when exercised in a spirit of ill temper, or under the license of bad manners; whereas, very humble powers, when allowed to expand themselves colloquially in that genial freedom which is possible only under the most absolute confidence in the self-restraint of your collocutors, accomplish their purpose to a certainty, if it be the ordinary purpose of liberal amusement, and have a chance of accomplishing it even when this purpose is the more ambitious one of communicating knowledge or exchanging new views upon truth.

In my own early years, having been formed by nature too exclusively and morbidly for solitary thinking, I observed nothing. Seeming to have eyes, in reality I saw nothing. But it is a matter of no uncommon experience, that, whilst the mere observers never become meditators, the mere meditators, on the other hand, may finally ripen into close observers. Strength of thinking, through long years, upon innumerable themes, will have the effect of disclosing a vast variety of questions, to which it soon becomes apparent that answers are lurking up and down the whole field of daily experience; and thus an external experience which was slighted in youth, because it was a dark cipher that could be read into no meaning, a key that answered to no lock, gradually becomes interesting as it is found to yield one solution after another to problems that have independently matured in the mind. Thus, for instance, upon the special functions of conversation, upon its powers, its laws, its ordinary diseases, and their appropriate remedies, in youth I never bestowed a thought or a care. I viewed it, not as one amongst the gay ornamental arts of the intellect, but as one amongst the dull necessities of business. Loving solitude too much, I understood too little the capacities of colloquial intercourse. And thus it is, though not for my reason, that most people estimate the intellectual relations of conversation. Let these, however, be what they may, one thing seemed undeniable—that this world talked a great deal too much. Lord Bacon had been led to remark the capacities of conversation as an organ for sharpening one particular mode of intellectual power. Circumstances, on the other hand, led me into remarking the special capacities of conversation, as an organ for absolutely creating another mode of power. Let a man have read, thought, studied, as much as he may, rarely will he reach his possible advantages as a *ready* man, unless he has exercised his powers much in conversation—that was Lord Bacon's idea. Now, this wise and useful remark points in a direction not objective, but subjective—that is, it does not promise any absolute extension to truth itself, but only some greater facilities to the man who expounds or diffuses the truth. Nothing will be done for truth objectively that would not at any rate be done, but subjectively it will be done with more fluency, and at less cost of exertion to the doer. On the contrary, my own growing reveries on the latent powers of conversation (which, though a thing that then I hated, yet challenged at times unavoidably my attention), pointed to an absolute birth of new insight into the truth itself, as inseparable from the firm and more scientific exercise of the talking art. It would not be the brilliancy, the ease, or the adroitness of the expounder, that would benefit, but the absolute interests of the thing expounded. A feeling dawned on me of a secret magic lurking in the peculiar life, velocities, and contagious ardor of conversation, quite separable from any which belonged to books; arming a man with new forces, and not merely with a new dexterity in wielding the old ones. I felt, and in this I could not be mistaken, as too certainly it was a fact of my own experience, that in the electric kindling of life between two minds, and far less from the kindling natural to conflict (though *that* also is something) than from the kindling through sympathy with the object discussed, in its momentary coruscations of shifting phases, there sometimes arise glimpses and shy revelations of affinity, suggestion, relation, analogy, that could not have been approached through any avenues of methodical study. Great organists find the same effect of inspiration, the same result of power creating and revealing, in the mere movement and velocity of their own voluntaries, like the heavenly wheels of Milton, throwing off fiery flakes and bickering flames; *impromptu* torrents of music create rapturous *fioriture*, beyond all capacity in the artist to register, or afterwards to imitate. One remarkable evidence of a *specific* power lying in conversation, may be seen in such writings as have moved by impulses most nearly resembling those of conversation; for instance, into those of Edmund

Burke. For one moment, reader, pause upon the spectacle of two contrasted intellects, Burke's and Johnson's: one an intellect essentially going forward, governed by the very necessity of growth—by the law of motion in advance; the latter, essentially an intellect retrogressive, retrospective, and throwing itself back on its own steps. This original difference was aided accidentally in Burke by the tendencies of political partisanship, which, both from moving amongst moving things and uncertainties, as compared with the more stationary aspects of moral philosophy, and also from its more fluctuating and fiery passions, must unavoidably reflect in greater life the tumultuary character of conversation. The result from these original differences of intellectual constitution, aided by these secondary differences of pursuit, is, that Dr. Johnson never, in any instance, grows a truth before your eyes, whilst in the act of delivering it or moving towards it. All that he offers up to the end of the chapter he had when he began. But to Burke, such was the prodigious elasticity of his thinking, equally in his conversation and his writings, the mere act of movement became the principle or cause of movement. Motion propagated motion, and life threw off life. The very violence of a projectile, as thrown by *him*, caused it to rebound in fresh forms, fresh angles, splintering, coruscating, which gave out thoughts as new (and that would at the beginning be as startling) to himself as they are to his reader. In this power, which might be illustrated largely from the writings of Burke, is seen something allied to the powers of a prophetic seer, who is compelled oftentimes into seeing things, as unexpected by himself as by others. Now, in conversation, considered as to its *tendencies* and capacities, there sleeps an intermitting spring of such sudden revelation, showing much of the same general character; a power putting on a character *essentially* differing from the character worn by the power of books.

Many people think Dr. Johnson the *exemplar* of conversational power. I think otherwise, for reasons I shall soon explain, and far sooner should I look for such an *exemplar* in Burke. But neither Johnson nor Burke, however they might rank as *powers*, was the *artist* that I demand. Burke valued not at all the reputation of a great performer in conversation; he scarcely contemplated the skill as having a real existence; and a man will never be an artist who does not value his art, or even recognize it as an object distinctly defined. Johnson, again, relied sturdily upon his natural powers for carrying him aggressively through all conversational occasions or difficulties that English society, from its known character and composition, could be supposed likely to bring forward, without caring for any art or system of rules that might give further effect to that power. If a man is strong enough to knock down ninety-nine in a hundred of all antagonists, in spite of any advantages as to pugilistic science which they may possess over himself, he is not likely to care for the improbable case of a hundredth man appearing with strength equal to his own, superadded to the utmost excess of that artificial skill which is wanting in himself. Against such a contingency it is not worth while going to the cost of a regular pugilistic training Half a century might not bring up a case of actual call for its application. Or, if it did, for a single *extra* case of that nature, there would always be a resource in the *extra* (and, strictly speaking, foul) arts of kicking, scratching, pinching, and tearing hair.

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But there was a greater defect in Dr. Johnson, for purposes of conversation, than merely want of eye for the social phenomena rising around him. He had no eye for such phenomena, because he had a somnolent want of interest in them; and why? because he had little interest in man. Having no sympathy with human nature in its struggles, or faith in the progress of man, he could not be supposed to regard with much interest any forerunning symptoms of changes that to him were themselves indifferent. And the reason he felt thus careless was the desponding taint in his blood. It is good to be of a melancholic temperament, as all the ancient physiologists held, but only if the melancholy is balanced by fiery aspiring qualities, not when it gravitates essentially to the earth. Hence the drooping, desponding character, and the monotony of the estimate which Dr. Johnson applied to life. We were all, in *his* view, miserable, scrofulous wretches; the "strumous diathesis" was developed in our flesh, or soon would be, and, but for his piety, which was the best indication of some greatness latent within him, he would have suggested to all mankind a nobler use for garters than any which regarded knees. In fact, I believe that but for his piety, he would not only have counseled hanging in general, but hanged himself in particular. Now, this gloomy temperament, not as an occasional, but as a permanent state, is fatal to the power of brilliant conversation, in so far as that power rests upon raising a continual succession of topics, and not merely of using with lifeless talent the topics offered by others. Man is the central interest about which revolve all the fleeting phenomena of life; these secondary interests demand the first; and with the little knowledge about them which must follow from little care about them, there can be no salient fountain of conversational themes. *Pectus—id est quod disertum facit.* From the heart, from an interest of love or hatred, of hope or care, springs all permanent eloquence; and the elastic spring of conversation is gone, if the talker is a mere showy man of talent, pulling at an oar which he detests.

In speaking above of conversation, we have fixed our view on those uses of conversation which are ministerial to intellectual culture; but, in relation to the majority of men, conversation is far less valuable as an organ of intellectual culture than of social enjoyment. For one man interested in conversation as a means of advancing his studies, there are fifty men whose interest in conversation points exclusively to convivial pleasure. This, as being a more extensive function of conversation, is so far the more dignified function; whilst, on the other hand, such a purpose as direct mental improvement seems by its superior gravity to challenge the higher rank. Yet, in fact, even here the more general purpose of conversation takes precedency; for, when dedicated to the objects of festal delight, conversation rises by its tendency to the rank of a fine art. It is true that not one man in a million rises to any distinction in this art; nor, whatever France may conceit of herself, has any one nation, amongst other nations, a real precedency in this art. The artists are rare indeed; but still the art, as distinguished from the artist, may, by its difficulties, by the quality of its graces, and by the range of its possible brilliancies, take as a *fine* art; or at all events, according to its powers of execution, it tends to that rank; whereas the best order of conversation that is simply ministerial to a purpose of use, cannot pretend to a higher name than that of a *mechanic* art.

In the course of our life we have heard much of what was reputed to be the select conversation of the day, and we have heard many of those who figured at the moment as effective talkers; yet in mere sincerity, and without a vestige of misanthropic retrospect, we must say, that never once has it happened to us to come away from any display of that nature without intense disappointment; and it always appeared to us that this failure (which soon ceased to be a *disappointment*) was inevitable by a necessity of the case. For here lay the stress of the difficulty; almost all depends, in most trials of skill, upon the parity of those who are matched against each other. An ignorant person supposes that, to an able disputer, it must be an advantage to have a feeble opponent; whereas, on the contrary, it is ruin to him; for he cannot display his own powers but through something of a corresponding power in the resistance of his antagonist. A brilliant fencer is lost and confounded in playing with a novice; and the same thing takes place in playing at ball, or battledore, or in dancing, where a powerless partner does not enable you to shine the more, but reduces you to mere helplessness, and takes the wind altogether out of your sails. Now, if by some rare good luck the great talker—the protagonist—of the evening has been provided with a commensurate second, it is just possible that something like a brilliant "passage of arms" may be the result, though much, even in that case, will depend on the chances of the moment for furnishing a fortunate theme; and even then, amongst the superior part of the company, a feeling of deep vulgarity and of mountebank display is inseparable from such an ostentatious duel of wit. On the other hand, suppose your great talker to be received like any other visitor, and turned loose upon the company, then he must do one of two things; either he will talk upon *outrè* subjects specially tabooed to his own private use, in which case the great man has the air of a quack-doctor addressing a mob from a street stage; or else he will talk like ordinary people upon popular topics; in which case the company, out of natural politeness, that they may not seem to be staring at him as a lion, will hasten to meet him in the same style; the conversation will become general; the great man will seem reasonable and well-bred; but at the same time, we grieve to say it, the great man will have been extinguished by being drawn off from his exclusive ground.

Yet surely Coleridge *had* such a reputation (for brilliant talking), and without needing any collusion at all; for Coleridge, unless he could have all the talk, would have none. But then this was not conversation; it was not *colloquium*, or talking *with* the company, but *alloquium*, or talking *to* the company. As Madame de Staël observed, Coleridge talked, and *could* talk, only by monologue. Such a mode of systematic trespass upon the conversational rights of a whole party, gathered together under pretense of amusement, is fatal to every and make the whole company unfit for any other conversation, beside the indignity of confounding men's talents at so shameful a rate.

Raillery is the finest part of conversation; but, as it is our usual custom to counterfeit and adulterate whatever is too dear for us, so we have done with this, and turned it all into what is generally called repartee, or being smart; just as when an expensive fashion comes up, those who are not able to reach it, content themselves with some paltry imitation. It now passes for raillery to run a man down in discourse, to put him out of countenance and make him ridiculous; sometimes to expose the defects of his person or understanding; on all which occasions, he is obliged not to be angry, to avoid the imputation of not being able to take a jest. It is admirable to observe one who is dexterous at this art, singling out a weak adversary, getting the laugh on his side, and then carrying all before him. The French, from whence we borrow the word, have a quite different idea of the thing, and so had we in the politer age of our fathers. Raillery was to say something that at first appeared a reproach or reflection, but, by some turn of wit, unexpected and surprising, ended always in a compliment, and to the advantage of the person it was addressed to. And surely one of the best rules in conversation is, never to say a thing which any of the company can reasonably wish we had rather left unsaid: nor can there anything be well more contrary to the ends for which people meet together, than to part unsatisfied with each other or themselves.

There are two faults in conversation, which appear very different, yet arise from the same root, and are equally blameable; I mean an impatience to interrupt others; and the uneasiness of being interrupted themselves. The two chief ends of conversation are to entertain and improve those we are among, or to receive those benefits ourselves; which, whoever will consider, cannot easily run into either of these two errors; because, when any man speaks in company, it is to be supposed he does it for his hearers' sake, and not his own; so that common discretion will teach us not to force their attention, if they are not willing to lend it; nor, on the other side, to interrupt him who is in possession, because that is in the grossest manner to give the preference to our own good sense.

There are some people whose good manners will not suffer them to interrupt you, but, what is almost as bad, will discover abundance of impatience, and lie upon the watch until you have done, because they have started something in their own thoughts, which they long to be delivered of. Meantime, they are so far from regarding what passes, that their imaginations are wholly turned upon what they have in reserve, for fear it should slip out of their memory; and thus they confine their invention, which might otherwise range over a hundred things full as good, and that might be much more naturally introduced.

There is a sort of rude familiarity, which some people, by practising among their intimates, have introduced into their general conversation, and would have it pass for innocent freedom of humor; which is a dangerous experiment in our northern climate, where all the little decorum and politeness we have are purely forced by a trand, are so ready to lapse into barbarity. This, among the Romans, was the raillery of slaves, of which we have many instances in Plautus. It seems to have been introduced among us by Cromwell, who, by preferring the scum of the people, made it a court entertainment, of which I have heard many particulars; and considering all things were turned upside-down, it was reasonable and judicious: although it was a piece of policy found out to ridicule a point of honor in the other extreme, when the smallest word misplaced among gentlemen ended in a duel.

There are some men excellent at telling a story, and provided with a plentiful stock of them, which they can draw out upon occasion in all companies; and, considering how low conversation runs now among us, it is not altogether a contemptible talent; however, it is subject to two unavoidable defects, frequent repetition, and being soon exhausted; so that, whoever values this gift in himself, has need of a good memory, and ought frequently to shift his company, that he may not discover the weakness of his fund; for those who are thus endued have seldom any other revenue, but live upon the main stock.

Great speakers in public are seldom agreeable in private conversation, whether their faculty be natural, or acquired by practice, and often venturing. Natural elocution, although it may seem a paradox, usually springs from a barrenness of invention, and of words; by which men who have only one stock of notions upon every subject, and one set of phrases to express them in, they swim upon the superfices, and offer themselves on every occasion; therefore men of much learning, and who know the compass of a language, are generally the worst talkers on a sudden, until much practice has inured and emboldened them; because they are confounded with plenty of matter, variety of notions and of words, which they cannot readily choose, but are perplexed and entangled by too great a choice; which is no disadvantage in private conversation; where, on the other side, the talent of haranguing is, of all others, most unsupportable.

Nothing has spoiled men more for conversation than the character of being wits; to support which they never fail of encouraging a number of followers and admirers, who list themselves in their service, wherein they find their accounts on both sides by pleasing their mutual vanity. This has given the former such an air of superiority, and made the latter so pragmatical, that neither of them are well to be endured. I say nothing here of the itch of dispute and contradiction, telling of lies, or of those who are troubled with the disease called the wandering of the thoughts, so that they are never present in mind at what passes in discourse; for whoever labors under any of these possessions, is as unfit for conversation as a madman in Bedlam.

I think I have gone over most of the errors in conversation that have fallen under my notice or memory, except some that are merely personal, and others too gross to need exploding; such as lewd or profane talk; but I pretend only to treat the errors of conversation in general, and not the several subjects of discourse, which would be infinite. Thus we see how human nature is most debased, by the abuse of that faculty which is held the great distinction between men and brutes: and how little advantage we make of that, which might be the greatest, the most lasting, and the most innocent, as well as useful pleasure of life: in default of which we are forced to take up with those poor amusements of dress and visiting, or the more pernicious ones of play, drink, and vicious amours; whereby the nobility and gentry of both sexes are entirely corrupted, both in body and mind, and have lost all notions of love, honor, friendship, generosity: which, under the name of fopperies, have been for some time laughed out of doors.

This degeneracy of conversation, with the pernicious consequences thereof upon our humors and dispositions, has been owing, among other causes, to the custom arisen, for some time past, of excluding women from any share in our society, further than in parties at play or dancing, or in the pursuit of an amour.

I take the highest period of politeness in England (and it is of the same date in France) to have been the peaceable part of king Charles I.'s reign, and from what we read of those times, as well as from the accounts I have formerly met with from some who lived in that court, the methods then used for raising and cultivating conversation were altogether different from ours: several ladies, whom we find celebrated by the poets of that age, had assemblies at their houses, where persons of the best understanding, and of both sexes, met to pass the evenings in discoursing upon whatever agreeable subjects were occasionally started; and although we are apt to ridicule the sublime Platonic notions they had, or personated, in love and friendship, I conceive their refinements were grounded upon reason, and that a little grain of the romance is no ill ingredient to preserve and exalt the dignity of human nature, without which it is apt to degenerate into everything that is sordid, vicious, and low. If there were no other use in the conversation of ladies, it is sufficient that it would lay a restraint upon those odious topics of immodesty and indecencies, into which the rudeness of our northern genius is apt to fall. And, therefore, it is observable in those sprightly gentlemen about the town, who are so very dexterous at entertaining a vizard mask in the park or the playhouse, that in the company of ladies of virtue and honor, they are silent and disconcerted, and out of their element.

There are some people who think they sufficiently acquit themselves, and entertain their company, with relating facts of no consequence, nor at all out of the road of such common incidents as happen every day; and this I have observed more frequently among the Scots than any other nation, who are very careful not to omit the minutest circumstances of time or place; which kind of discourse, if it were not a little relieved by the uncouth terms and phrases, as well as accent and gesture peculiar to that country, would be hardly tolerable. It is not a fault in company to talk much; but to continue it long is certainly one; for, if the majority of those who are got together be naturally silent or cautious, the conversation will flag, unless it be often renewed by one among them, who can start new subjects, provided he does not dwell upon them, that leave room for answers and replies.

The first thing to consider in falling into conversation with any one is, whether he has a greater inclination to hear you, or that you should hear him.—*Steele.*

In conversation, humor is more than wit, easiness more than knowledge; few desire to learn, or think they need it; all desire to be pleased, or if not, to be easy.—*Sir William Temple.*

He who sedulously attends, pointedly asks, cooly answers, calmly speaks, and ceases when he has nothing to say, is in possession of the best requisites of a good converser.—*Lavater.*

The listening well and answering well is one of the perfections to be attained in conversation.—*Le Rochefoucauld.*

We should bring into society our proportion of good will or good humor, and not trouble our friends with our real or imaginary afflictions. Cares, distresses, diseases, animosities, and dislikes should not be obtruded on others who have little sorrows enough of their own; and valetudinarians should be sworn before they enter into company not to say a word of themselves until the meeting breaks up.—*Addison.*

Self is a subject on which all are fluent and few interesting.—*Byron.*

CONVERSATION—AN ART.

LETTER OF THOMAS DEQUINCEY TO A YOUNG FRIEND.—*Abridged.*

AMONGST the arts connected with the *elegances* of social life, in a degree which nobody denies, is the art of Conversation; but in a degree which almost everybody denies, if one may judge by their neglect of its simplest rules, this same art is not less connected with the *uses* of social life. Neither the luxury of conversation, nor the possible benefit of conversation, is to be under that rude administration of it which generally prevails. Without an art, without some simple system of rules, gathered from experience of such contingencies as are most likely to mislead the practice, when left to its own guidance, no art of man nor effort accomplishes its purposes in perfection. Yet for conversation, the great paramount purpose of social meetings, no art exists or has been attempted.

That seems strange, but is not entirely so. A limited process submits readily to the limits of technical system; but a process so unlimited as the interchange of thought, seems to reject them. And even if an art of conversation were less unlimited, the means of carrying such an art into practical effect, amongst so vast a variety of minds, seem wanting. Yet again, perhaps, after all, this may rest on a mistake. What we begin by misjudging is the particular phasis of conversation which brings it under the control of art and discipline. It is not in its relation to the intellect that conversation has been improved or *will* be improved primarily, but in its relation to manners. Has a man ever mixed with what in technical phrase is called "good company," meaning company in the highest degree polished, company which (being or *not* being aristocratic as respects its composition) is aristocratic as respects the standard of its manners and usages? If he really *has*, and does not deceive himself from vanity or from pure acquaintance with the world, in that case he must have remarked the large effect impressed upon the grace and upon the freedom of conversation by a few simple instincts of real good breeding. Good breeding—what is it? There is no need in this place to answer that question comprehensively; it is sufficient to say, that it is made up chiefly of *negative* elements; that it shows itself far less in what it prescribes, than in what it forbids. Now, even under this limitation of the idea, the truth is, that more will be done for the benefit of conversation by the simple magic of good manners (that is, chiefly by a system of forbearances), applied to the besetting vices of social intercourse, than ever *was* or *can* be done by all varieties of intellectual power assembled upon the same arena. Intellectual graces of the highest order may perish and confound each other when exercised in a spirit of ill temper, or under the license of bad manners; whereas, very humble powers, when allowed to expand themselves colloquially in that genial freedom which is possible only under the most absolute confidence in the self-restraint of your collocutors, accomplish their purpose to a certainty, if it be the ordinary purpose of liberal amusement, and have a chance of accomplishing it even when this purpose is the more ambitious one of communicating knowledge or exchanging new views upon truth.

In my own early years, having been formed by nature too exclusively and morbidly for solitary thinking, I observed nothing. Seeming to have eyes, in reality I saw nothing. But it is a matter of no uncommon experience, that, whilst the mere observers never become meditators, the mere meditators, on the other hand, may finally ripen into close observers. Strength of thinking, through long years, upon innumerable themes, will have the effect of disclosing a vast variety of questions, to which it soon becomes apparent that answers are lurking up and down the whole field of daily experience; and thus an external experience which was slighted in youth, because it was a dark cipher that could be read into no meaning, a key that answered to no lock, gradually becomes interesting as it is found to yield one solution after another to problems that have independently matured in the mind. Thus, for instance, upon the special functions of conversation, upon its powers, its laws, its ordinary diseases, and their appropriate remedies, in youth I never bestowed a thought or a care. I viewed it, not as one amongst the gay ornamental arts of the intellect, but as one amongst the dull necessities of business. Loving solitude too much, I understood too little the capacities of colloquial intercourse. And thus it is, though not for *my* reason, that most people estimate the intellectual relations of conversation. Let these, however, be what they may, one thing seemed undeniable—that this world talked a great deal too much. Lord Bacon had been led to remark the capacities of conversation as an organ for sharpening one particular mode of intellectual power. Circumstances, on the other hand, led me into remarking the special capacities of conversation, as an organ for absolutely creating another mode of power. Let a man have read, thought, studied, as much as he may, rarely will he reach his possible advantages as a *ready* man, unless he has exercised his powers much in conversation—that was Lord Bacon's idea. Now, this wise and useful remark points in a direction not objective, but subjective—that is, it does not promise any absolute extension to truth itself, but only some greater facilities to the man who expounds or diffuses the truth. Nothing will be done for truth objectively that would not at any rate be done, but subjectively it will be done with more fluency, and at less cost of exertion to the doer. On the contrary, my own growing reveries on the latent powers of conversation (which, though a thing that then I hated, yet challenged at times unavoidably my attention), pointed to an absolute birth of new insight into the truth itself, as inseparable from the firm and more scientific exercise of the talking art. It would not be the brilliancy, the ease, or the adroitness of the expounder, that would benefit, but the absolute interests of the thing expounded. A feeling dawned on me of a secret magic lurking in the peculiar life, velocities, and contagious ardor of conversation, quite separable from any which belonged to books; arming a man with new forces, and not merely with a new dexterity in wielding the old ones. I felt, and in this I could not be mistaken, as too certainly it was a fact of my own experience, that in the electric kindling of life between two minds, and far less from the kindling natural to conflict (though *that* also is something) than from the kindling through sympathy with the object discussed, in its momentary coruscations of shifting phases, there sometimes arise glimpses and shy revelations of affinity, suggestion, relation, analogy, that could not have been approached through any avenues of methodical study. Great organists find the same effect of inspiration, the same result of power creating and revealing, in the mere movement and velocity of their own voluntaries, like the heavenly wheels of Milton, throwing off fiery flakes and bickering flames; *impromptu* torrents of music create rapturous *fioriture*, beyond all capacity in the artist to register, or afterwards to imitate. One remarkable evidence of a *specific* power lying in conversation, may be seen in such writings as have moved by impulses most nearly resembling those of conversation; for instance, into those of Edmund

Burke. For one moment, reader, pause upon the spectacle of two contrasted intellects, Burke's and Johnson's: one an intellect essentially going forward, governed by the very necessity of growth—by the law of motion in advance; the latter, essentially an intellect retrogressive, retrospective, and throwing itself back on its own steps. This original difference was aided accidentally in Burke by the tendencies of political partisanship, which, both from moving amongst moving things and uncertainties, as compared with the more stationary aspects of moral philosophy, and also from its more fluctuating and fiery passions, must unavoidably reflect in greater life the tumultuary character of conversation. The result from these original differences of intellectual constitution, aided by these secondary differences of pursuit, is, that Dr. Johnson never, in any instance, grows a truth before your eyes, whilst in the act of delivering it or moving towards it. All that he offers up to the end of the chapter he had when he began. But to Burke, such was the prodigious elasticity of his thinking, equally in his conversation and his writings, the mere act of movement became the principle or cause of movement. Motion propagated motion, and life threw off life. The very violence of a projectile, as thrown by *him*, caused it to rebound in fresh forms, fresh angles, splintering, coruscating, which gave out thoughts as new (and that would at the beginning be as startling) to himself as they are to his reader. In this power, which might be illustrated largely from the writings of Burke, is seen something allied to the powers of a prophetic seer, who is compelled oftentimes into seeing things, as unexpected by himself as by others. Now, in conversation, considered as to its *tendencies* and capacities, there sleeps an intermitting spring of such sudden revelation, showing much of the same general character; a power putting on a character *essentially* differing from the character worn by the power of books.

Many people think Dr. Johnson the *exemplar* of conversational power. I think otherwise, for reasons I shall soon explain, and far sooner should I look for such an *exemplar* in Burke. But neither Johnson nor Burke, however they might rank as *powers*, was the *artist* that I demand. Burke valued not at all the reputation of a great performer in conversation; he scarcely contemplated the skill as having a real existence; and a man will never be an artist who does not value his art, or even recognize it as an object distinctly defined. Johnson, again, relied sturdily upon his natural powers for carrying him aggressively through all conversational occasions or difficulties that English society, from its known character and composition, could be supposed likely to bring forward, without caring for any art or system of rules that might give further effect to that power. If a man is strong enough to knock down ninety-nine in a hundred of all antagonists, in spite of any advantages as to pugilistic science which they may possess over himself, he is not likely to care for the improbable case of a hundredth man appearing with strength equal to his own, superadded to the utmost excess of that artificial skill which is wanting in himself. Against such a contingency it is not worth while going to the cost of a regular pugilistic training Half a century might not bring up a case of actual call for its application. Or, if it did, for a single *extra* case of that nature, there would always be a resource in the *extra* (and, strictly speaking, foul) arts of kicking, scratching, pinching, and tearing hair.

The conversational powers of Johnson were narrow in compass, however strong within their own essential limits. As a *conditione sine quâ non*, he did not absolutely demand a *personal* contradiction by way of "stoker" to supply fuel and keep up his steam, but he demanded at least a *subject* teeming with elements of known contradictory opinion, whether linked to partisanship or not. His views of all things tended to negation, never to the positive and the creative. Hence may be explained a fact, which cannot have escaped any keen observer of those huge Johnsonian memoriabilia which we possess, namely, the gyration of his flight upon any one question that ever came before him was so exceedingly brief. There was no process, no evolution, no movements of self-conflict or preparation; a word, a distinction, a pointed antithesis, and, above all, a new abstraction of the logic involved in some popular fallacy, or doubt, or prejudice, or problem, formed the utmost of his efforts. He dissipated some casual perplexity that had gathered in the eddies of conversation, but he contributed nothing to any weightier interest; he unchoked a strangulated sewer in some blind alley, but what river is there that felt his cleansing power? There is no man that can cite any single error which Dr. Johnson unmasked, or any important truth which he expanded.

But there was a greater defect in Dr. Johnson, for purposes of conversation, than merely want of eye for the social phenomena rising around him. He had no eye for such phenomena, because he had a somnolent want of interest in them; and why? because he had little interest in man. Having no sympathy with human nature in its struggles, or faith in the progress of man, he could not be supposed to regard with much interest any forerunning symptoms of changes that to him were themselves indifferent. And the reason he felt thus careless was the desponding taint in his blood. It is good to be of a melancholic temperament, as all the ancient physiologists held, but only if the melancholy is balanced by fiery aspiring qualities, not when it gravitates essentially to the earth. Hence the drooping, desponding character, and the monotony of the estimate which Dr. Johnson applied to life. We were all, in *his* view, miserable, scrofulous wretches; the "strumous diathesis" was developed in our flesh, or soon would be, and, but for his piety, which was the best indication of some greatness latent within him, he would have suggested to all mankind a nobler use for garters than any which regarded knees. In fact, I believe that but for his piety, he would not only have counseled hanging in general, but hanged himself in particular. Now, this gloomy temperament, not as an occasional, but as a permanent state, is fatal to the power of brilliant conversation, in so far as that power rests upon raising a continual succession of topics, and not merely of using with lifeless talent the topics offered by others. Man is the central interest about which revolve all the fleeting phenomena of life; these secondary interests demand the first; and with the little knowledge about them which must follow from little care about them, there can be no salient fountain of conversational themes. *Pectus—id est quod disertum facit.* From the heart, from an interest of love or hatred, of hope or care, springs all permanent eloquence; and the elastic spring of conversation is gone, if the talker is a mere showy man of talent, pulling at an oar which he detests.

In speaking above of conversation, we have fixed our view on those uses of conversation which are ministerial to intellectual culture; but, in relation to the majority of men, conversation is far less valuable as an organ of intellectual culture than of social enjoyment. For one man interested in conversation as a means of advancing his studies, there are fifty men whose interest in conversation points exclusively to convivial pleasure. This, as being a more extensive function of conversation, is so far the more dignified function; whilst, on the other hand, such a purpose as direct mental improvement seems by its superior gravity to challenge the higher rank. Yet, in fact, even here the more general purpose of conversation takes precedency; for, when dedicated to the objects of festal delight, conversation rises by its tendency to the rank of a fine art. It is true that not one man in a million rises to any distinction in this art; nor, whatever France may conceit of herself, has any one nation, amongst other nations, a real precedency in this art. The artists are rare indeed; but still the art, as distinguished from the artist, may, by its difficulties, by the quality of its graces, and by the range of its possible brilliancies, take as a *fine* art; or at all events, according to its powers of execution, it tends to that rank; whereas the best order of conversation that is simply ministerial to a purpose of use, cannot pretend to a higher name than that of a *mechanic* art.

In the course of our life we have heard much of what was reputed to be the select conversation of the day, and we have heard many of those who figured at the moment as effective talkers; yet in mere sincerity, and without a vestige of misanthropic retrospect, we must say, that never once has it happened to us to come away from any display of that nature without intense disappointment; and it always appeared to us that this failure (which soon ceased to be a *disappointment*) was inevitable by a necessity of the case. For here lay the stress of the difficulty; almost all depends, in most trials of skill, upon the parity of those who are matched against each other. An ignorant person supposes that, to an able disputer, it must be an advantage to have a feeble opponent; whereas, on the contrary, it is ruin to him; for he cannot display his own powers but through something of a corresponding power in the resistance of his antagonist. A brilliant fencer is lost and confounded in playing with a novice; and the same thing takes place in playing at ball, or battledore, or in dancing, where a powerless partner does not enable you to shine the more, but reduces you to mere helplessness, and takes the wind altogether out of your sails. Now, if by some rare good luck the great talker—the protagonist—of the evening has been provided with a commensurate second, it is just possible that something like a brilliant "passage of arms" may be the result, though much, even in that case, will depend on the chances of the moment for furnishing a fortunate theme; and even then, amongst the superior part of the company, a feeling of deep vulgarity and of mountebank display is inseparable from such an ostentatious duel of wit. On the other hand, suppose your great talker to be received like any other visitor, and turned loose upon the company, then he must do one of two things; either he will talk upon *outrè* subjects specially tabooed to his own private use, in which case the great man has the air of a quack-doctor addressing a mob from a street stage; or else he will talk like ordinary people upon popular topics; in which case the company, out of natural politeness, that they may not seem to be staring at him as a lion, will hasten to meet him in the same style; the conversation will become general; the great man will seem reasonable and well-bred; but at the same time, we grieve to say it, the great man will have been extinguished by being drawn off from his exclusive ground.

Yet surely Coleridge *had* such a reputation (for brilliant talking), and without needing any collusion at all; for Coleridge, unless he could have all the talk, would have none. But then this was not conversation; it was not *colloquium*, or talking *with* the company, but *alloquium*, or talking *to* the company. As Madame de Staël observed, Coleridge talked, and *could* talk, only by monologue. Such a mode of systematic trespass upon the conversational rights of a whole party, gathered together under pretense of amusement, is fatal to every purpose of social intercourse, whether that purpose be connected with direct use and the service of the intellect, or with the general graces and amenities of life.

We see the same temper illustrated at times in traveling; a brutal person, as we are disposed at first to pronounce him, but more frequently one who yields unconsciously to a lethargy of selfishness, plants himself at the public fireplace, so as to exclude his fellow-travelers from all but a fraction of the warmth. Yet he does not do this in a spirit of willful aggression upon others; he has but a glimmering suspicion of the odious shape which his own act assumes to others, for the luxurious torpor of self-indulgence has extended its mists to the energy and clearness of his perceptions. Meantime, Coleridge's habit of soliloquizing through a whole evening of four or five hours had its origin neither in arrogance nor in absolute selfishness. The fact was that he *could* not talk unless he were uninterrupted, and unless he were able to count upon this concession from the company. It was a silent contract between him and his hearers, that nobody should speak but himself. If any man objected to this arrangement, why did he come? For the custom of the place, the *lex loci*, being notorious, by coming at all he was understood to profess his allegiance to the autocrat who presided. It was not, therefore, by an insolent usurpation that Coleridge persisted in monology through his whole life, but in virtue of a concession from the kindness and respect of his friends. You could not be angry with him for using his privilege, for it was a privilege conferred by others, and a privilege which he was ready to resign as soon as any man demurred to it. But though reconciled to it by these considerations, and by the ability with which he used it, you could not but feelt hat it worked ill for all parties. Himself it tempted oftentimes into pure garrulity of egotism, and the listeners it reduced to a state of debilitated sympathy or of absolute torpor. Prevented by the custom from putting questions, from proposing doubts, from asking for explanations, reäcting by no mode of mental activity, and condemned also to the mental distress of hearing opinions or doctrines stream past them by flights which they must not arrest for a moment, so as even to take a note of them, and which yet they could not often understand, or, seeming to understand, could not always approve, the audience sunk at times into a listless condition of inanimate vacuity. To be acted upon forever, but never to reäct, is fatal to the very powers by which sympathy must grow, or by which intelligent admiration can be evoked. For his own sake, it was Coleridge's interest to have forced his hearers into the active commerce of question and answer, of objection and demur. Not otherwise was it possible that even the attention could be kept from drooping, or the coherency and dependency of the arguments be forced into light.

The French rarely make a mistake of this nature. The graceful levity of the nation could not easily err in this direction, nor tolerate such deliration in the greatest of men. Not the gay temperament only of the French people, but the particular qualities of the French language, (which however poor for the higher purposes of passion) is rich beyond all others for purposes of social intercourse, prompt them to rapid and vivacious exchange of thought. It is not strange, therefore, that Madame de Staël noticed little as extraordinary in Coleridge beyond this one capital monstrosity of unlimited soliloquy, that being a peculiarity which she never could have witnessed in France; and, considering the burnish of her French tastes in all that concerned colloquial characteristics, it is creditable to her forbearance that she noticed even this rather as a memorable fact than as the inhuman fault which it was. On the other hand, Coleridge was not so forbearing as regarded the brilliant French lady. He spoke of her to ourselves as a very frivolous person, and in short summary terms that disdained to linger upon a subject so inconsiderable. It is remarkable that Goethe and Schiller both conversed with Madame de Staël, like Coleridge, and both spoke of her afterwards in the same disparaging terms as Coleridge. But it is equally remarkable that Baron *William* Humboldt, who was personally acquainted with all the four parties,—Madame de Staël, Goethe, Schiller, and Coleridge,—gave it as his opinion (in letters subsequently published) that the lady had been calumniated through a very ignoble cause, namely, mere ignorance of the French language, or, at least, non-familiarity with the fluences of *oral* French. Neither Goethe nor Schiller, though well acquainted with written French, had any command of it for purposes of *rapid* conversation; and Humboldt supposes that mere spite at the trouble which they found in limping after the lady so as to catch one thought that she uttered, had been the true cause of their unfavorable sentence upon her. Not malice aforethought, so much as vindictive fury for the sufferings they had endured, accounted for their severity in the opinion of the diplomatic baron. He did not extend the same explanation to Coleridge's case, because, though even then in habits of intercourse with Coleridge, he had not heard of *his* interview with the lady, nor of the results from that interview; else what was true of the two German wits was true *à fortiori* of Coleridge; the Germans at least *read* French and talked it slowly, and occasionally understood it when talked by others. But Coleridge did none of these things.

It will come to be considered an infringement of the general rights for any man to detain the conversation, or arrest its movement, for more than a short space of time, which gradually will be more and more defined. This one curtailment of arrogant pretensions will lead to others. Egotism will no longer freeze the openings to intellectual discussions; and conversation will then become, what it never *has* been before, a powerful ally of education, and generally of self-culture. The main diseases that besiege conversation at present are—

1st. The want of *timing*. Those who are not recalled, by a sense of courtesy and equity, to the continual remembrance that, in appropriating too large a share of the conversation, they are committing a fraud upon their companions, are beyond all control of monitory hints or of reproof; which does not take a direct and open shape of personal remonstrance; but this, where the purpose of the assembly is festive and convivial, bears too harsh an expression for most people's feelings. That objection, however, would not apply to any mode of admonition that was universally established. A public memento carries with it no personality. For instance, in the Roman law-courts, no advocate complained of the *clepsydra*, or water timepiece, which regulated the duration of his pleadings. Now, such a contrivance would not be impracticable at an after-dinner talk. To invert the clepsydra, when all the water had run out, would be an act open to any one of the guests, and liable to no misconstruction, when this check was generally applied, and understood to be a simple expression of public defense, not of private rudeness or personality. The clepsydra ought to be filled with some brilliantly colored fluid, to be placed in the centre of the table, and with the capacity, at the very most, of the little minute-glasses used for regulating the boiling of eggs. It would obviously be insupportably tedious to turn the glass every two or three minutes; but to do so occasionally would avail as a sufficient memento to the company.

2d. Conversation suffers from the want of some discretional power lodged in an individual for controlling its movements. Very often it sinks into flats of insipidity through mere accident. Some trifle has turned its current upon ground where few of the company have anything to say—the commerce of thought languishes; and the consciousness that it *is* languishing about a narrow circle, " unde pedem proferre pudor vetat," operates for the general refrigeration of the company. Now, the ancient Greeks had an officer appointed over every convivial meeting, whose functions applied to all cases of doubt or interruption that could threaten the genial harmony of the company. We also have such officers—presidents, vice-presidents, &c.; and we need only to extend their powers, so that they may exercise over the movement of the conversation the beneficial influence of the Athenian *symposiarch*. At present the evil is, that conversation has no authorized originator; it is servile to the accidents of the moment; and generally these accidents are merely verbal. Some word or some name is dropped casually in the course of an illustration; and *that* is allowed to suggest a topic, though neither interesting to the majority of the persons present, nor leading naturally into other collateral topics that are more so. Now, in such cases it will be the business of the symposiarch to restore the interest of the conversation, and to rekindle its animation, by recalling it from any tracks of dullness or sterility into which it may have rambled. The natural *excursiveness* of colloquial intercourse, its tendency to advance by subtle links of association, is one of its advantages; but mere *vagrancy* from passive acquiescence in the direction given to it by chance or by any verbal accident, is amongst its worst diseases. The business of the symposiarch will be, to watch these morbid tendencies, which are not the deviations of graceful freedom, but the distortions of imbecility and collapse. His business it will also be to derive occasions of discussion bearing a general and permanent interest from the fleeting events of the casual disputes of the day. His business again it will be to bring back a subject that has been imperfectly discussed, and has yielded but half of the interest which it promises, under the interruption of any accident which may have carried the thoughts of the party into less attractive channels. Lastly, it should be an express office of education to form a particular style, cleansed from *verbiage*, from elaborate parenthesis, and from circumlocution, as the only style fitted for a purpose which is one of pure enjoyment.

Many other suggestions for the improvement of conversation might be brought forward with ampler limits; and especially for that class of conversation which moves by discussion, a whole code of regulations might be proposed, that would equally promote the interests of the individual speakers and the puplic interests of the truth involved in the question discussed. Meantime nobody is more aware than we are, that no style of conversation is more essentially vulgar than that which moves by disputation. This is the vice of the young and the inexperienced, but especially of those amongst them who are fresh from academic life. But discussion is not necessarily disputation; and the two orders of conversation—*that*, on the one hand, which contemplates an interest of knowledge, and of the self-developing intellect; *that*, on the other hand, which forms one and the widest amongst the gay embellishments of life—will always advance together. Whatever may remain of illiberal in the first, will correct itself, or will tend to correct itself, by the model held up in the second; and thus the great organ of social intercourse, by means of speech, which hitherto has done little for man, except through the channel of its ministrations to the direct *business* of daily necessities, will at length rise into a rivalship with books, and become fixed amongst the alliances of intellectual progress, not less than amongst the ornamental accomplishments of convivial life.

EDUCATION, STUDIES, AND CONDUCT.

SUGGESTIONS AND ENCOURAGEMENTS FOR SELF-EDUCATION.

LETTERS OF THOMAS DE QUINCEY TO A YOUNG MAN WHOSE EDUCATION HAD BEEN NEGLECTED.

THE following suggestions are taken from a series of Letters addressed by the author to a young man, whose early education had been neglected, but who, coming to the possession of abundant means, and to the consciousness of his own intellectual deficiencies, applied to Mr. De Quincey for a plan of study and reading by which he might supply them. The entire series, if completed, we have not seen in print, and must confine our extracts to the preliminary suggestions, leaving out much which is valuable:

MY DEAR SIR,

Your cousin L—— has explained to me all that your own letter had left imperfect; in particular, how it was that you came to be defrauded of the education to which even your earliest and humblest prospects had entitled you; by what heroic efforts, but how vainly, you labored to repair that greatest of losses; what remarkable events concurred to raise you to your present state of prosperity; and all other circumstances which appeared necessary to put me fully in possession of your present wishes and intentions.

The two questions which you addressed to me through him I have answered below: these were questions which I could answer easily and without meditation; but for the main subject of our future correspondence, it is so weighty, and demands such close attention (as even *I* find, who have revolved the principal points almost daily for many years), that I would willingly keep it wholly distinct from the hasty letter which I am now obliged to write; on which account it is that I shall forbear to enter at present upon the series of letters which I have promised, even if I should find that my time were not exhausted by the answers to your *two questions below*. . . .

To your first question,—whether to you, with your purposes and at your age of thirty-two, a residence at either of our English universities, or at any foreign university, can be of much service?—my answer is, firmly and unhesitatingly, no. The majority of the undergraduates of your own standing, in an academic sense, will be your juniors by twelve or fourteen years; a disparity of age which could not but make your society mutually burthensome. What, then, is it that you would seek in a university? Lectures? These, whether public or private, are surely the very worst modes of acquiring any sort of accurate knowledge; and are just as much inferior to a good book on the same subject, as that book, hastily read aloud and then immediately withdrawn, would be inferior to the same book, left in your possession, and open at any hour, to be consulted, retraced, collated, and, in the fullest sense, studied. But, besides this, university lectures are naturally adapted, not so much to the general purpose of communicating knowledge, as to the specific purpose of meeting a particular form of examination for degrees, and a particular profession to which the whole course of the education is known to be directed. The two single advantages which lectures can ever acquire, to balance those which they forego, are either, *first*, the obvious one of a better apparatus for displaying illustrative experiments than most students can command; and the cases where this becomes of importance it cannot be necessary to mention; *second*, the advantage of a rhetorical delivery, when *that* is of any use (as in lectures on poetry, etc.). These, however, are advantages more easily commanded in a great capital than in the most splendid university. What, then, remains to a university, except its libraries? And, with regard to those, the answer is short: to the greatest of them undergraduates have not free access; to the inferior ones (of their own college, etc.) the libraries of the great capitals are often equal or superior: and, for mere purposes of study, your own private library is far preferable to the Bodleian or the Vatican. To you, therefore, a university can offer no attraction, except on the assumption that you see cause to adopt a profession; and, as a degree from some university would, in that case, be useful (and indispensable, except for the bar), your determination on this first question must still be dependent on that which you form upon the second.

In this second question you call for my opinion upon the eleventh chapter of Mr. Coleridge's Biographia Literaria, as applied to the circumstances in which you yourself are placed. This chapter, to express its substance in the most general terms, is a dissuasion from what Herder, in a passage there quoted, calls "*Die Authorschaft;*" or, as Mr. Coleridge expresses it, "the trade of authorship;" and the amount of the advice is,—that, for the sake of his own happiness and respectability, every man should adopt some trade or profession, and should make literature a subordinate pursuit. On this advice, I understand you to ask, *first*, whether it is naturally to be interpreted as extending to cases such as yours; and, *second*, if so, what is my judgment on such advice so extended? As to my judgment upon this advice, supposing it addressed to men of your age and situation, you will easily collect, from all which I shall say, that I think it as bad as can well be given.

What Mr. Coleridge really has in his view are two most different objections to literature, as the principal pursuit of life; which, as I have said, continually alternate with each other as the objects of his arguments, and sometimes become perplexed together, though incapable of blending into any real coalition. The objections urged are: *First.* To literature considered as a means of livelihood,—as any part of the resources which a man should allow himself to rely on for his current income, or worldly credit and respectability; here the evils anticipated by Mr. Coleridge are of a high and positive character, and such as tend directly to degrade the character, and indirectly to aggravate some heavy domestic evils. *Second.* To literature considered as the means of sufficiently occupying the intellect. Here the evil apprehended is an evil of defect; it is alleged that literature is not adequate to the main end of giving due and regular excitement to the mind and the spirits, unless combined with some other summons to mental exercise of periodical recurrence,—determined by an overruling cause, acting from without,—and not dependent, therefore, on the accidents of individual will, or the caprices of momentary feeling springing out of temper or bodily health. Upon the last objection, as by far the most important in any case, and the only one at all applicable to yours, I would wish to say a word; because my thoughts on that matter are from the abundance of my heart, and drawn up from the very depths of my own experience. If there has ever lived a man who might claim the privilege of speaking with emphasis and authority on this great question,—By what means shall a man best support the activity of his own mind in solitude?—I, probably, am that man; and upon this ground, that I have passed more of my life in absolute and unmitigated solitude, voluntarily, and for intellectual purposes, than any person of my age whom I have ever met with, heard of, or read of. With such pretensions, what is it that I offer as the result of my experience, and how far does it coincide with the doctrine of Mr. Coleridge?

Briefly this: I wholly agree with him that literature, in the proper acceptation of the term, as denoting what is otherwise called *Belles Lettres*, etc.,—that is, the most eminent of the fine arts, and so understood, therefore, as to exclude *all science* whatsoever, is not, to use a Greek word, *άυταζκης*, —not self-sufficing; no, not even when the mind is so far advanced that it can bring what have hitherto passed for merely literary or *æsthetic* questions, under the light of philosophic principles; when problems of "taste" have expanded to problems of human nature. And why? Simply for this reason,—that our power to exercise the faculties on such subjects is not, as it is on others, in defiance of our own spirits; the difficulties and resistances to our progress in these investigations are not susceptible of minute and equable partition (as in mathematics); and, therefore, the movements of the mind cannot be continuous, but are either, of necessity, tumultuary and *per saltum*, or none at all. When, on the contrary, the difficulty is pretty equally dispersed and broken up into a series of steps, no one of which demands any exertion sensibly more intense than the rest, nothing is required of the student beyond that sort of application and coherent attention which, in a sincere student of any standing, may be presumed as a habit already and inveterately established. The dilemma, therefore, to which a student of pure literature is continually reduced—such a student, suppose, as the Schlegels, or any other man who has cultivated no acquaintance with the severer sciences—is this: either he studies literature as a mere man of taste, and, perhaps, also as a philologer,—and, in that case, his understanding must find a daily want of some masculine exercise to call it out and give it play,—or (which is the rarest thing in the world), having begun to study literature as a philosopher, he seeks to renew that elevated walk of study at all opportunities; but this is often as hopeless an effort as to a great poet it would be to sit down upon any predetermination to compose in his character of poet. Hence, therefore,—if (as too often it happens) he has not cultivated those studies (mathematics, *e. g.*) which present such difficulties as will bend to a resolute effort of the mind, and which have the additional recommendation that they are apt to stimulate and irritate the mind to make that effort,—he is often thrown, by the very cravings of an unsatisfied intellect, and not by passion or inclination, upon some vulgar excitement of business or pleasure, which becomes constantly more necessary.

GENERAL MEANS OF STUDY.

According to my view, they are three,—first, Logic; secondly, Languages; thirdly, Arts of Memory. With respect to these, it is not necessary that any special end should be previously given. Be his end what it may, every student must have thoughts to arrange, knowledge to transplant, and facts to record. Means which are thus universally requisite may safely have precedency of the end; and it will not be a preposterous order if I dedicate my first three letters to the several subjects of Logic, Languages, and Arts of Memory, which will compose one half of my scheme, leaving to the other half the task of unfolding the course of study for which these instruments will be available. Having thus settled the arrangement, and implicitly, therefore, settled in part the idea or *ratio* of my scheme, I shall go on to add what may be necessary to confine your expectations to the right track, and prevent them from going above or below the true character of the mark I aim at. I profess, then, to attempt something much higher than merely directions for a course of reading. Not that such a work might not be of eminent service; and in particular at this time, and with a constant adaptation to the case of rich men, not literary, I am of opinion that no more useful book could be executed than a series of letters (addressed, for example, to country gentlemen, merchants, etc.) on the formation of a library. The uses of such a treatise, however, are not those which I contemplate; for, either it would presume and refer to a plan of study already settled,—and in that light it is a mere complement of the plan I propose to execute,—or else it would attempt to *involve* a plan of study in the course of reading suggested; and *that* would be neither more nor less than to do *in concreto*, what it is far more convenient, as well as more philosophical, to do (as I am now going to do) directly and *in abstracto*. A mere course of reading, therefore, is much below what I propose; on the other hand, an organon of the human understanding is as much above it. Such a work is a labor for a life; that is to say, though it may take up but a small part of every day, yet could it in no other way accumulate its materials than by keeping the mind everlastingly on the watch to seize upon such notices as may arise daily throughout a life under the favor of accident or occasion. Forty years are not too large a period for such a work; and my present work, however maturely meditated, must be executed with rapidity. Here, in fact, I do but sketch or trace in outline (ὡς· ἐν τυπῳ πεζιλαβειν) what there it would become my duty to develop, to fill up in detail, to apply, and to illustrate on the most extensive scale.

After having attempted, in my first part, to put you in possession of the best method for acquiring the *instruments* of study; and, with respect to logic in particular, having directed a philosophic light upon its true meaning and purpose, with the hope of extinguishing that anarchy of errors which have possessed this ground from the time of Lord Bacon to the moment at which I write; I then, in the second division, address myself to the question of *ends*. Upon which word let me distinguish: upon ends, in an absolute sense, as ultimate ends, it is presumption in any man to offer counsel to another of mature age. Advice of that sort, given under whatever hollow pretences of kindness, is to be looked upon as arrogance in the most repulsive shape; and to be rejected with that sort of summary disdain, which any man not of servile nature would testify towards him who should attempt to influence his choice of a wife. A student of mature age must be presumed to be best acquainted with his own talents and his own intellectual infirmities, with his "forte" and his "foible," with his own former experience of failure or success, and with the direction in which his inclinations point. Far be it from me to violate, by the spirit of my counsels, a pride so reasonable, which, in truth, I hold sacred. My scheme takes an humbler ground. *Ends*, indeed, in a secondary sense, the latter half professes to deal with; but such ends as, though bearing that character in relation to what is purely and merely instrumental, yet again become *means* in relation to ends absolutely so called. The *final* application of your powers and knowledge, it is for yourself only to determine; my pretensions, in regard to that election, are limited to this,—that I profess to place you on a vantage ground from which you may determine more wisely, by determining from a higher point of survey. My purpose is not to map the whole course of your journey, but to serve as your guide to that station at which you may be able to lay down your future route for yourself. The former half of my work I have already described to you; the latter half endeavors to construct such a system of study as shall combine these two advantages: 1. Systematic unity; that is, such a principle of *internal* connection, as that the several parts of the plan shall furnish assistance interchangeably. 2. The largest possible compass of *external* relations. Some empires, you know, are built for growth; others are essentially improgressive, but are built for duration, on some principle of strong internal cohesion. Systems of knowledge, however, and schemes of study, should propose both ends; they should take their foundations broad and deep,

"And lay great bases for eternity,"

which is the surest key to internal and systematic connection; and, secondly, they should provide for future growth and accretion, regarding all knowledge as a nucleus and centre of accumulation for other knowledge. It is on this latter principle, by the way, that the system of education in our public schools, however otherwise defective, is justly held superior to the specious novelties of our suburban academies; for it is more radical, and adapted to a larger superstructure. Such, I say, is the character of my scheme; and, by the very act of claiming for it, as one of its benefits, that it leaves you in the *centre* of large and comprehensive relations to other parts of knowledge, it is pretty apparent that I do not presume to suggest in what direction of these manifold relations you should afterwards advance; *that*, as I have now sufficiently explained, will be left to your own self-knowledge; but to your self-knowledge illumined at the point where I leave you by that other knowledge which my scheme of study professes to communicate.

When I spoke above of the student's taking his foundations broad and deep, I had my eye chiefly on the corner-stones of strong-built knowledge, namely, on logic; on a proper choice of languages; on a particular part of what is called metaphysics; and on mathematics. Now, you allege (I suppose upon occasion of my references to mathematics in my last letter) that you have no "genius" for mathematics; and you speak with the usual awe (*pavor attonitorum*) of the supposed "profundity" of intellect necessary to a great progress in this direction. Be assured that you are in utter error; though it be an error all but universal. In mathematics, upon two irresistible arguments which I shall set in a clear light, when I come to explain the procedure of the mind with regard to that sort of evidence and that sort of investigation, there can be no subtlety; all minds are levelled except as to the rapidity of the course, and, from the entire absence of all those acts of mind which do really imply profundity of intellect, it is a question whether an idiot might not be made an excellent mathematician. Listen not to the romantic notions of the world on this subject; above all, listen not to mathematicians. Mathematicians, *as mathematicians*, have no business with the question. It is one thing to understand mathematics, another, and far different, to understand the philosophy of mathematics. With respect to this, it is memorable that, in no one of the great philosophical questions which the ascent of mathematics has, from time to time, brought up above the horizon of our speculative view, has any mathematician who was merely such (however eminent) had depth of intellect adequate to its solution, without insisting on the absurdities published by mathematicians, on the philosophy of the *infinite*, since that notion was introduced into mathematics, or on the fruitless attempts of all but a metaphysician to settle the strife between the conflicting modes of valuing *living forces*;—I need only ask what English or French mathematician has been able to exhibit the notion of *negative quantities*, in a theory endurable even to a popular philosophy, or which has commanded any assent? Or, again, what Algebra is there existing which does not contain a false and ludicrous account of the procedure in that science, as contrasted with the procedure in geometry? But, not to trouble you with more of these cases so opprobrious to mathematicians, lay this to heart, that mathematics are very easy and very important; they are, in fact, the organ of one large division of human knowledge. And, as it is of consequence that you should lose no time by waiting for my letter on that subject, let me forestall so much of it as to advise that you would immediately commence with Euclid; reading those eight books of the Elements which are usually read, and the Data. If you should go no further, so much geometry will be useful and delightful; and so much, by reading for two hours a day, you will easily accomplish in about thirteen weeks, that is, one quarter of a year.

LANGUAGES.

On this Babel of an earth which you and I inhabit, there are said to be about three thousand languages and jargons. Of nearly five hundred, you will find a specimen in the Mithridates of Adelung, and in some other German works of more moderate bulk. . . .

To a professed linguist, therefore, the natural advice would be—examine the structure of as many languages as possible; gather as many thousand specimens as possible into your *hortus siccus*, beginning with the eldest forms of the Teutonic, namely, the Visigothic and the Icelandic, for which the aids rendered by modern learning are immense. To a professed philologist, I say, the natural advice would be this. But to you, who have no such purposes, and whom I suppose to wish for languages simply as avenues to literature, not otherwise accessible, I will frankly say—start from this principle—that the act of learning a language is in itself an evil; and so frame your selection of languages, that the largest possible body of literature *available for your purposes* shall be laid open to you at the least possible price of time and mental energy squandered in this direction. I say this with some earnestness. For I will not conceal from you that one of the habits most unfavorable to the growth and sincere culture of the intellect in our day, is the facility with which men surrender themselves to the barren and ungenial labor of language-learning. Unless balanced by studies that give more exercise, more excitement, and more aliment to the faculties, I am convinced, by all I have observed, that this practice is the dry-rot of the human mind. How should it be otherwise? The act of learning a science is good, not only for the knowledge which results, but for the exercise which attends it; the energies which the learner is obliged to put forth are true intellectual energies, and his very errors are full of instruction. He fails to construct some leading idea, or he even misconstructs it; he places himself in a false position with respect to certain propositions; views them from a false centre; makes a false or an imperfect antithesis; apprehends a definition with insufficient rigor; or fails in his use of it to keep it self-consistent. These and a thousand other errors are met by a thousand appropriate resources—all of a true intellectual character—comparing, combining, distinguishing, generalizing, subdividing, acts of abstraction and evolution, of synthesis and analysis, until the most torpid minds are ventilated, and healthily excited by this introversion of the faculties upon themselves.

But, in the study of language (with an exception, however, to a certain extent, in favor of Latin and Greek, which I shall notice hereafter), nothing of all this can take place, and for one simple reason,—that all is arbitrary. Wherever there is a law and system, wherever there is relation and correspondence of parts, the intellect will make its way,—will interfuse amongst the dry bones the blood and pulses of life, and create "a soul under the ribs of death." But whatsoever is arbitrary and conventional,—which yields no reason why it should be this way rather than that, obeying no theory or law,

—must, by its lifeless forms, kill and mortify the action of the intellect. If this be true, it becomes every student to keep watch upon himself, that he does not, upon any light temptation, allow himself an overbalance of study in this direction; for the temptations to such an excess, which in our days are more powerful than formerly, are at all times too powerful. Of all the weapons in the armory of the scholar, none is so showy or so captivating to commonplace minds as skill in languages. *Vanity* is, therefore, one cause of the undue application to languages. A second is the national *fashion*. What nation but ourselves ever made the language of its eternal enemy an essential part of even a decent education? What should we think of Roman policy if, during the second Punic War, the Carthaginian language had been taught, as a matter of course, to the children of every Roman citizen? But a third cause, which, I believe, has more efficacy than either of the former, is mere *levity*,—the simple fact of being unballasted by any sufficient weight of plan or settled purpose to present a counterpoise to the slightest momentum this way or that, arising from any impulse of accident or personal caprice. When there is no resistance, a breath of air will be sufficient to determine the motion. I remember once, that, happening to spend an autumn in Ilfracombe, on the west coast of Devonshire, I found all the young ladies whom I knew busily employed in the study of marine botany. On the opposite shore of the channel, in all the South Welsh ports of Tenby, etc., they were no less busy upon conchology. In neither case, from any previous love of the science, but simply availing themselves of their local advantages. . . .

In a celebrated satire (*The Pursuits of Literature*), much read in my youth, and which I myself read about twenty-five years ago, I remember one counsel —there addressed to young men, but, in fact, of universal application. "I call upon them," said the author, "to *dare* to be ignorant of many things:" a wise counsel, and justly expressed; for it requires much courage to forsake popular paths of knowledge, merely upon a conviction that they are not favorable to the ultimate ends of knowledge. In you, however, *that* sort of courage may be presumed; but how will you "dare to be ignorant" of many things in opposition to the cravings of your own mind? Simply thus: destroy these false cravings by introducing a healthier state of the organ. A good scheme of study will soon show itself to be such by this one test—that it will exclude as powerfully as it will appropriate; it will be a system of repulsion no less than of attraction; once thoroughly possessed and occupied by the deep and genial pleasures of one truly intellectual pursuit, you will be easy and indifferent to all others that had previously teased you with transient excitement. . . . If your intentions, as I suppose, lean most to literature, let me establish one necessary distinction, because the word literature is used in two senses; the philosophical, in which it is the direct and adequate antithesis of books of knowledge, and the popular, in which it is a mere term of convenience for expressing inclusively the total books in a language. In the former sense, it will exclude all books in which the matter is paramount to the manner or form, in which literature is a fine art. The true antithesis of literature to books of knowledge (books written to instruct) is power. Henceforth I should use the antitheses power and knowledge as the most philosophical expression for literature (that is, *literae humaniores*), and anti-literature (that is, *literae didacticae*), [meaning by literature of power, books written not simply to amuse or instruct, but, like *Paradise Lost* or *King Lear*, to call forth the deepest emotions, and inspire new conceptions of ideal beauty and grandeur].

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CLASSICAL LANGUAGES.

Now, then, prepared with this distinction, let us inquire whether—weighing the difficulties against the benefits—there is an overbalance of motive for you, with your purposes, to study what are inaccurately termed* the "classical" languages. And, first, with respect to Greek, we have often had the question debated, and, in our own days, solemn challenges thrown out and solemn adjudications given on the question, whether any benefit corresponding to the time and the labor can be derived from the study of the ancient classics. Hitherto, however, the question could not be rightly shaped; for, as no man chose to plead "amusement" as a sufficient motive for so great an undertaking, it was always debated with a single reference to the *knowledge* involved in those literatures. But this is a ground wholly untenable. For, let the knowledge be what it might, all knowledge is translatable, and translatable without one atom of loss. If this were all, therefore, common sense would prescribe that faithful translations should be executed of all the classics, and all men in future depend upon these vicarious labors. With respect to the Greek, this would soon be accomplished; for what is the knowledge which lurks in that language? All knowledge may be commodiously distributed into science and erudition; of the latter (antiquities, geography, philology, theology, etc.), there is a very considerable body; of the former, but little, namely, the mathematical and musical works,—and the medical works—what else? Nothing that can deserve the name of science, except the single *organon* of Aristotle. With Greek medicine, I suppose that you have no concern. As to mathematics, a man must be an idiot if he were to study Greek for the sake of Archimedes, Apollonius, or Diophantus. In Latin or in French you may find them all regularly translated, and parts of them embodied in the works of English mathematicians. Besides, if it were otherwise, where the notions and all the relations are so few, elementary, and determinate, and the vocabulary, therefore, so scanty, as in mathematics, it could not be necessary to learn Greek, even if you were disposed to read them.

It is not for knowledge that Greek is worth learning, but for power. Here arises the question—Of what value is this power? that is, how is the Grecian literature to be rated in relation to other literatures? . . . The question is limited wholly, as you see, to the value of the literature in the proper sense of that word. Now, it is my private theory, to which you will allow what degree of weight you please, that the antique or pagan literature is a polar antagonist to the modern or Christian literature; that each is an evolution from a distinct principle, having nothing in common but what is necessarily common to all modes of thought, namely, good sense and logic; and that they are to be criticised from different stations and points of view. . . .

So much for the Greek. Now, as to the Latin, the case is wholly reversed. Here the literature is of far less value; and, on the whole, with your views, it might be doubted whether it would recompense your pains. But the anti-literature (as, for want of a strict antithesis, I must call it) is inestimable,

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* A late writer has announced it as a matter of discovery, that the term "classics" is applicable also to the modern languages. But, surely, this was never doubted by any man who considered the meaning and origin of the term. It is drawn, as the reader must be reminded, from the political economy of Rome. Such a man was rated as to his income in the third class, such another in the fourth, and so on; but he who was in the highest, was said emphatically to be of *the* class, "classicus," a class-man, without adding the number, as in that case superfluous. Hence, by an obvious analogy, the best authors were rated as classici, or men of the highest class; just as, in English, we say, "men of rank," absolutely, for men who are in the highest ranks of the state. The particular error by which this mere formal term of relation was *materiated* (if I may so say) in one of its accidents (namely, the application to Greek and Roman writers), is one of the commonest and most natural.

Latin having been the universal language of Christendom for so long a period. The Latin works since the restoration of letters are alone of immense value for knowledge of every kind; much science, inexhaustible erudition; and, to this day, in Germany, and elsewhere on the Continent, the best part of the latter is communicated in Latin. Now, though all knowledge *is* (which power is not) adequately communicable by translation, yet as there is no hope that the immense bibliotheca of Latin accumulated in the last three centuries ever will be translated, you cannot possibly dispense with this language. . . .

MODERN LANGUAGES.

Reserving to my conclusion anything I have to say upon these *languages*, as depositories of *literature* properly so called, I shall first speak of them as depositories of *knowledge*. Among the four great races of men in Europe, namely, 1. The Celtic, occupying a few of the western extremities of Europe; 2. The Teutonic, occupying the northern and midland parts; 3. The Latin (blended with Teutonic tribes), occupying the south; and, 4. The Sclavonic, occupying the east, it is evident that of the first and the last it is unnecessary to say anything in this place, because their pretensions to literature do not extend to our present sense of the word. No Celt even, however extravagant, pretends to the possession of a body of Celtic philosophy and Celtic science of independent growth. The Celtic and Sclavonic languages, therefore, dismissed, our business at present is with those of the Latin and the Teutonic families. Now, three of the Latin family, namely, the Italian, Spanish, and Portuguese, are at once excluded for the purpose before us: because it is notorious that, from political and religious causes, these three nations have but feebly participated in the general scientific and philosophic labors of the age. Italy, indeed, has cultivated natural philosophy with an exclusive zeal; a direction probably impressed upon the national mind by patriotic reverence for her great names in that department. But, merely for the sake of such knowledge (supposing no other motive), it would be idle to pay the price of learning a language,—all the current contributions to science being regularly gathered into the general garner of Europe by the scientific journals, both at home and abroad. Of the Latin languages, therefore, which are wholly the languages of Catholic nations, but one—that is, the French—can present any sufficient attractions to a student in search of general knowledge. Of the Teutonic literatures, on the other hand, which are the adequate representatives of the Protestant intellectual interest in Europe (no Catholic nations speaking a Teutonic language except the southern states of Germany and part of the Netherlands), all give way at once to the paramount pretensions of the English and the German. I do not say this with the levity of ignorance, as if presuming, as a matter of course, that in a small territory, such as Denmark, *e. g.*, the literature must, of necessity, bear a value proportioned to its political rank. On the contrary, I have some acquaintance with the Danish literature; and though, in the proper sense of the word literature as a body of creative art, I cannot esteem it highly, yet, as a depository of knowledge in one particular direction,—namely, the direction of historical and antiquarian research,—it has, undoubtedly, high claims upon the student's attention. . . .

Waiving all mere presumptive arguments, the bare amount of books annually published in the several countries of Europe puts the matter out of all doubt, that the great commerce of thought and knowledge in the civilized world is, at this day, conducted in three languages—the English, the German, and the French. You, therefore, having the good fortune to be an Englishman, are to make your choice between the two last; and, this being so, I conceive that there is no room for hesitation,—the "detur pulchriori" being, in this case (that is, remember, with an exclusive reference to *knowledge*), a direction easily followed.

Dr. Johnson was accustomed to say of the French literature, as the kindest thing he had to say about it, that he valued it chiefly for this reason: that it had a book upon every subject. How far this might be a reasonable opinion fifty years ago, and understood, as Dr. Johnson must have meant it, of the French literature as compared with the English of the same period, I will not pretend to say. It has certainly ceased to be true, even under these restrictions, and is in flagrant opposition to the truth if extended to the French in its relation to the German. Undoubtedly, the French literature holds out to the student some peculiar advantages, as what literature does not?—some, even, which we should not have anticipated; for, though we justly value ourselves, as a nation, upon our classical education, yet no literature is poorer than the English in the learning of classical antiquities,—our Bentleys, even, and our Porsons, having thrown all their learning into the channel of philology; whilst a single volume of the Memoirs of the French Academy of Inscriptions contains more useful antiquarian research than a whole English library. In digests of history, again, the French language is richer than ours, and in their dictionaries of miscellaneous knowledge (*not* in their encyclopedias). But all these are advantages of the French only in relation to the English, and not to the German literature, which, for vast compass, variety, and extent, far exceeds all others as a depository for the current accumulations of knowledge. The mere number of books published annually in Germany, compared with the annual product of France and England, is alone a satisfactory evidence of this assertion. With relation to France, it is a second argument in its favor that the intellectual activity of Germany is not intensely accumulated in one great capital, as it is in Paris; but, whilst it is here and there converged intensely enough for all useful purposes (as at Berlin, Königsberg, Leipsic, Dresden, Vienna, Munich, etc.), it is also healthily diffused over the whole territory. There is not a sixth-rate town in Protestant Germany which does not annually contribute its quota of books: intellectual culture has manured the whole soil; not a district but it has penetrated,

> ——"like Spring,
> Which leaves no corner of the land untouched."

A third advantage on the side of Germany (an advantage for this purpose), is its division into a great number of independent states. From this circumstance it derives the benefit of an internal rivalship amongst its several members, over and above that general external rivalship which it maintains with other nations. An advantage of the same kind we enjoy in England. The British nation is fortunately split into three great divisions, and thus a national feeling of emulation and contest is excited,—slight, indeed, or none at all, on the part of the English (not from any merit, but from mere decay of patriotic feeling), stronger on the part of the Irish, and sometimes illiberally and odiously strong on the part of the Scotch (especially as you descend below the rank of gentlemen). But, disgusting as it sometimes is in its expression, this nationality is of great service to our efforts in all directions. A triple power is gained for internal excitement of the national energies; whilst, in regard to any external enemy, or any external rival, the three nations act with the unity of a single force. But the most conspicuous advantage of the German literature is its great originality and boldness of speculation, and the character of masculine austerity and precision impressed upon their scientific labors by the philosophy of Leibnitz and Wolff heretofore, and by the severer philosophy of modern days.

LETTER FROM THOMAS CARLYLE TO A STUDENT, ASKING ADVICE AS TO READING AND A PROFESSION.

DEAR SIR:—Some time ago your letter was delivered to me; I take literally the first half-hour I have had since to write you a word of answer. It would give me true satisfaction could any advice of mine contribute to forward you in your honorable course of self-improvement, but a long experience has taught me that advice can profit but little; that there is a good reason why advice is so seldom followed; this reason, namely, that it so seldom, and can almost never be, rightly given. No man knows the state of another; it is always to some more or less imaginary man that the wisest and most honest adviser is speaking.

As to the books which you—whom I know so little of—should read, there is hardly any thing definite that can be said. For one thing, you may be strenuously advised to keep reading. Any good book, any book that is wiser than yourself, will teach you something—a great many things, indirectly and directly, if your mind be open to learn. This old counsel of Johnson's is also good, and universally applicable: "Read the book you do honestly feel a wish and curiosity to read." The very wish and curiosity indicates that you, then and there, are the person likely to get good of it. "Our wishes are presentiments of our capabilities;" that is a noble saying, of deep encouragement to our wishes and efforts in regard to reading, as to other things. Among all the objects that look wonderful or beautiful to you, follow with fresh hope that one which looks wonderfulest, beautifulest. You may gradually find by various trials (which trials see that you make honest, manful ones, not silly, short, fitful ones,) what *is* for the wonderfulest, beautifulest—what is your *true* element and province, and be able to profit by that. True desire, the monition of nature, is much to be attended to. But here also, you are to discriminate carefully between *true* desire and false. The medical men tell us that we should eat what we *truly* have an appetite for; but what we only *falsely* have an appetite for we should resolutely avoid. It is very true: and flimsy desultory readers, who fly from foolish book to foolish book, and get good of none, and mischief of all—are not those as foolish, unhealthy eaters, who mistake their superficial false desire after spiceries and confectioneries for their real appetite, of which even they are not destitute, though it lies far deeper, far quieter, after solid nutritive food? With these illustrations I will recommend Johnson's advice to you.

Another thing, and only one other I will say. All books are properly the record of the history of past men—what thoughts past men had in them, what actions past men did: the summary of all books whatsoever lies *there*. It is on this ground that the class of books specifically named History can be safely recommended as the basis of all study of books. Past history, and especially the past history of one's own native country, everybody may be advised to begin with that. Let him study that faithfully; innumerable inquiries will branch out from it; he has a broad beaten highway, from which all the country is more or less visible; there traveling, let him choose where he will dwell. Neither let mistakes and wrong directions—of which every man in his studies and elsewhere, falls into many—discourage you. There is precious instruction to be got by finding we are wrong. Let a man try faithfully, manfully to be right, he will grow daily more and more right. It is at bottom the condition on which all men have to cultivate themselves. Our very walking is an incessant falling and catching of ourselves before we come actually to the pavement? It is emblematic of all things a man does.

In conclusion, I will remind you, it is not books alone, or by books chiefly, that a man becomes in all points a man. Study to do faithfully whatsoever thing in your actual situation, there and now, you find either expressly or tacitly laid to your charge; that is your post; stand in it like a true soldier. Silently devour the many chagrins of it, as all human situations have many; and see you aim not to quit it without being all that it at least required of you. A man perfects himself by work much more than by reading. They are a growing kind of men that can wisely combine the two things—wisely, valiantly, can do what is laid to their hand in their present sphere, and prepare themselves for doing other wider things, if such lie before them.

With many good wishes and encouragements, I remain, yours sincerely, THOMAS CARLYLE.

Chelsea, 13th March, 1843

A loving heart is the beginning of all knowledge. This it is that opens the whole mind, quickens every faculty of the intellect to do its fit work, that of *knowing*; and therefore, by sure consequence of wisely *uttering* forth.

The courage we desire and prize is not the courage to die decently, but to live manfully. This, when by God's grace it has been given, lies deep in the soul; like genial heat, fosters all other virtues and gifts; without it they could not live.

Clearly connected with this quality of valor, partly as springing from it, partly as protected by it, are the more recognizable qualities of truthfulness and honesty in action.

That mercy can dwell only with valor is an old sentiment.

CARLYLE—*Review of Boswell's Life of Johnson.*

EDUCATION, STUDIES, AND CONDUCT.

WHAT TO READ, AND HOW TO READ.

VALUE OF GOOD BOOKS.

Lord Bacon thus summarizes the advantages of knowledge, of which good books are the treasure-house:

> We see then how far the monuments of wit and learning are more durable than the monuments of power or of the hands. For have not the verses of Homer continued twenty-five hundred years or more; during which time infinite palaces, temples, castles, cities, have been decayed and demolished, and the pictures and statues of kings and great personages have perished. But the images of man's wits and knowledges remain in books, exempted from the wrong of time, and capable of perpetual renovation. Neither are they fitly to be called images, because they generate still, and cast their seeds in the minds of others, provoking and causing infinite actions and opinions in succeeding ages, so that, if the invention of the ship was thought so noble, which carrieth riches and commodities from place to place, and consociateth the most remote regions in participations of their fruits, how much more are letters to be magnified, which, as ships, pass through the vast seas of time, and make ages so distant to participate of the wisdom, illuminations, and inventions, the one of the other.

Milton in his eloquent plea for the Liberty of the Press, thus characterizes a good book:

> Books are not absolutely dead things, but do contain a progeny of life in them, to be as active as that soul was whose progeny they are; nay, they do preserve, as in a vial, the purest efficacy and extraction of that living intellect that bred them. I know they are as lively, and as vigorously productive as those fabulous dragon's teeth; and being sown up and down, may chance to bring up armed men. And yet, on the other hand, unless wariness be used, as good almost kill a man as kill a book. Who kills a man, kills a reasonable creature—God's image, but he who destroys a good book, destroys reason itself, kills the image of God, as it were, in the eye. Many a man lives a burden to the earth: but a good book is the precious life-blood of a master spirit, embalmed and treasured up on purpose to a life beyond life.

Sir John Herschel in an address to men whose education had been neglected or necessarily limited says:

> Of all amusements that can possibly be imagined for a hard-working man after his toil, or in its intervals, there is nothing like reading an interesting newspaper or book. It calls for no bodily exertion, of which he has already had enough, or perhaps too much. It relieves his home of its dullness and sameness. It transports him into a livelier and gayer, and more diversified and interesting scene; and while he enjoys himself there, he may forget the evil of the present moment fully as much as if he were ever so drunk,—with the great advantage of finding himself next day with the money in his pocket, or at least laid out in real necessaries and comforts for himself and family,—and without a headache. Nay, it accompanies him to his next day's work; and if what he has been reading be any thing above the idlest and lightest,

gives him something to think of, besides the mere mechanical drudgery of his every-day occupation,—something he can enjoy while absent, and look forward to with pleasure. If I were to pray for a taste which should stand me in stead, under every variety of circumstances, and be a source of happiness and cheerfulness to me through life, and a shield against its ills, however things might go amiss, and the world frown upon me, it would be a taste for reading. I speak of it of course only as a worldly advantage, and not in the slightest degree as superseding or derogating from the higher office and surer and stronger panoply of religious principles—but as a taste, an instrument, and a mode of pleasurable gratification. Give a man this taste, and the means of gratifying it, and you can hardly fail of making a happy man, unless, indeed, you put into his hands a most perverse selection of books. You place him in contact with the best society in every period of history—with the wisest, the wittiest—with the tenderest, the bravest, and the purest characters that have adorned humanity. You make him a denizen of all nations—a contemporary of all ages. The world has been created for him. It is hardly possible but the character should take a higher and better tone from the constant habit of associating in thought with a class of thinkers, to say the least of it, above the average of humanity. It is morally impossible but that the manners should take a tinge of good breeding and civilization from having constantly before one's eyes the way in which the best bred and the best informed men have talked and conducted themselves in their intercourse with each other. There is a gentle, but perfectly irresistible coercion in a habit of reading, well directed, over the whole tenor of a man's character and conduct, which is not the less effectual because it works insensibly, and because it is really the last thing he dreams of. It can not, in short, be better summed up than in the words of the Latin poet—*It civilizes the conduct of men—and suffers them not to remain barbarous.*

' Emollit mores, nec *sinit* esse feros.

T. B. Macaulay, M. P. [since called Lord Macaulay], in an address before a Mechanics' Institute, remarked:

There is, I may well say, no wealth, there is no power, there is no rank, which I would accept, if in exchange I were to be deprived of my books, of the privilege of conversing with the greatest minds of all past ages, of searching after the truth, of contemplating the beautiful, of living with the distant, the unreal, the past, and the future. Knowing, as I do, what it is to enjoy these pleasures myself, I do not grudge them to the laboring men, who, by their honorable, independent, and gallant efforts, have advanced themselves within their reach; and owing all that I owe to the soothing influences of literature, I should be ashamed of myself if I grudged the same advantages to them.

Hon. Rufus Choate in a speech in the Senate of the United States, pleading for the establishing of a great National Library out of the annual income of the Smithsonian Bequest, says:

Nobody can doubt that such a library comes within the terms and spirit of the trust. That directs us 'to increase and diffuse knowledge among men.' And does not the judgment of all the wise; does not the experience of all enlightened states; does not the whole history of civilization concur to declare that a various and ample library is one of the surest, most constant, most permanent, and most economical instrumentalities to increase, and diffuse knowledge? There it would be,—durable as liberty, durable as the union; a vast storehouse, a vast treasury, of all the facts which make up the history of man and of nature, so far as that history has been written; of all the truths which the inquiries and experiences of all the races and ages have found out; of all the opinions that have been promulgated; of all the emotions, images, sentiments, examples, of all the riches and most instructive literatures; the whole past speaking to the present and the future; a silent, yet wise and eloquent teacher; dead yet speaking—not dead! for Milton has told us that a 'good book is not absolutely a dead thing—the precious life-blood rather of a master spirit; a seasoned life of man embalmed and treasured up on purpose to a life beyond life.' Is not that an admirable instrumentality to increase and diffuse knowledge among men? It would place within the reach of our minds, of our thinkers, and investigators, and scholars, all, or the chief, intellectual and literary materials, and food and instruments, now within the reach of the cultivated foreign mind, and the effect would be to increase the amount of individual acquisition, and multiply the number of the learned. It would raise the standard of our scholarship, improve our style of investigation, and communicate an impulse to our educated and to the general mind. * * *

By such a library as you can collect here, something will be done, much will be done, to help every college, every school, every studious man, every writer and thinker in the country, to just what is wanted most. Inquirers after truth may come here and search for it. It will do them no harm at all to pass a few studious weeks among these scenes. Having pushed their investigations as far as they may at home, and ascertained just what, and how much more, of helps they require, let them come hither and find it. Let them replenish themselves, and then go back and make distribution among their pupils; ay, through the thousand channels, and by the thousand voices of the press, let them make distribution among the people! Let it be so, that—

> "Hither as to their fountains other stars
> Repairing, in their golden urns draw light."

* * * Think of the large absolute numbers of those who, in the succession of years, will come and partake directly of these stores of truth and knowledge! Think of the numbers without number, who, through them, who, by them directly, will partake of the same stores! Studious men will come to learn to speak and write to and for the growing millions of a generally educated community. They will learn that they may communicate. They can not hoard if they would, and they would not if they could. They take in trust to distribute; and every motive of ambition, of interest, of duty, will compel them to distribute. They buy in gross, to sell by retail. The lights which they kindle here will not be set under a bushel, but will burn on a thousand hills. No, sir; a rich and public library is no anti-republican monopoly. Who was the old Egyptian king that inscribed on his library the words, the dispensary of the soul? You might quite as well inscribe on it, armory, and light, and fountain of liberty!

DR. CHANNING in his Address to Young Men generally, and to Workingmen in particular, thus speaks of books as the powerful means of Self-Culture:

In the best books, great men talk to us, give us their most precious thoughts, and pour their souls into ours. God be thanked for books. They are the voices of the distant and the dead, and make us heirs of the spiritual life of past ages. Books are the true levelers. They give to all, who will faithfully use them, the society, the spiritual presence, of the best and greatest of our race. No matter how poor I am. No matter though the prosperous of my own time will not enter my obscure dwelling. If the Sacred Writers will enter and take up their abode under my roof, if Milton will cross my threshold to sing to me of Paradise, and Shakspeare to open to me the worlds of imagination and the workings of the human heart, and Franklin to enrich me with his practical wisdom, I shall not pine for want of intellectual companionship, and I may become a cultivated man though excluded from what is called the best society in the place where I live.

To make this means of culture effectual, a man must select good books, such as have been written by right-minded and strong-minded men, real thinkers, who instead of diluting by repetition, what others say, have something to say for themselves, write to give relief to full, earnest souls; and these works must not be skimmered over for amusement, but read with fixed attention and a reverential love of truth. In selecting books, we may be aided much by those who have studied more than ourselves. But, after all, it is best to be determined in this particular a good deal by our own tastes. The best books for a man are not always those which the wise recommend, but often those which meet the peculiar wants, the natural thirst of his mind, and therefore awaken interest and rivet thought.

Nothing can supply the place of books. They are cheering or soothing companions in solitude, illness, affliction. The wealth of both continents would not compensate for the good they impart. Let every man, if possible, gather some good books under his roof, and obtain access for himself and family to some social library. Almost any luxury should be sacrificed to this.

CHANNING.—*On Self Culture.*

A GREAT LIBRARY—THE TREASURE-HOUSE OF LITERATURE.

There, is collected the accumulated experience of ages—the volume of the historian, like lamps, to guide our feet:—there stands the heroic patterns of courage, magnanimity, and self-denying virtue:—there are embodied the gentler attributes, which soften and purify, while they charm, the heart:—there lie the charts of those who have explored the deeps and shallows of the soul:—there the dear-bought testimony, which reveals to us the ends of the earth, and shows that the girdle of the waters is nothing but their Maker's will:—there stands the Poet's harp, of mighty compass, and many strings:—there hang the deep-toned instruments through which patriotic eloquence has poured its inspiring echoes over oppressed nations:—there, in the sanctity of their own self-emitted light, repose the Heavenly oracles. This glorious fane, vast, and full of wonders, has been reared and stored by the labors of Lettered Men; and *could* it be destroyed, mankind might relapse to the state of savages.

JAMES. A. HILLHOUSE.—*Relations of Literature to a Republican Government.*

Hail, Learning's Pantheon! Hail, the sacred ark,
Where all the world of science doth embark,
Which ever shall withstand, as it hath long withstood,
  Insatiate Time's devouring flood!
Hail, Bank of all past ages, where they lie
T' enrich with interest all posterity!
Where thousand lights into one brightness spread,
Hail, Living university of the Dead!

COWLEY.—*University Library of Oxford, 1650.*

TEMPLE OF THE ENGLISH LANGUAGE.

I can believe that the English language is destined to be that in which shall arise, as in one universal temple, the utterance of the worship of all hearts. Broad and deep have the foundations been laid; and so vast is the area which they cover, that it is co-extensive with the great globe itself. For centuries past, proud intellectual giants have labored at this mighty fabric; and still it rises, and will rise for generations to come: and on its massive stones will be inscribed the names of the profoundest thinkers, and on its springing arches the records of the most daring flights of the master minds of genius, whose fame was made enduring by their love of the Beautiful and their adoration of the All Good. In this temple the Anglo-Saxon mosaic of the sacred words of truth will be the solid and enduring pavement; the dreams of poets will fill the rich tracery of its windows with the many-colored hues of thought; and the works of lofty philosophic minds will be the stately columns supporting its fretted roof, whence shall hang, sculptured, the rich fruits of the tree of knowledge, precious as "apples of gold,"—"the words of the wise."

G. W. MOON.—*Dean's English.*

EXTRACTS *from the Addresses delivered on the occasion of the Dedication of the Public Library of the City of Boston, on the* 1*st of January*, 1858.

HON. ROBERT C. WINTHROP, President of the Board of Commissioners, charged with the erection of the building, on delivering the keys to the mayor, spoke as follows:—

Welcome, fathers and mothers of our city; welcome, young ladies and children of the schools; welcome, lovers and patrons of literature and learning, of science and the arts; welcome, friends to good manners and good morals, and to those innocent recreations and ennobling pursuits by which alone vulgarity and vice can be supplanted; welcome, pastors and teachers of our churches and colleges; welcome, rulers and magistrates of our city, of our commonwealth, and of our whole country; welcome, citizens and residents of Boston, one and all, to an edifice which is destined, we trust, to furnish a resort, in many an hour of leisure and in many an hour of study, not for yourselves alone, but for those who shall come after you, through countless generations; and where shall constantly be spread, and constantly be served, without money and without price, an entertainment ever fresh, ever abundant, and ever worthy of intelligent and enlightened freemen. * * *

This substantial and spacious building owes its existence exclusively to the enlightened liberality of the municipal government. And I avail myself of the earliest opportunity to acknowledge most gratefully, in behalf of the Board of Commissioners as now composed, and of all who have been associated with us during its existence, the unhesitating promptness and unanimity with which every appropriation which has been asked, or even intimated as desirable, has been granted by successive City Councils. * * *

When a celebrated ruler and orator of Greece was arraigned for the costliness of some one of the many magnificent structures which are associated with his administration, and whose very ruins are now the admiration of the world, he is said to have replied, that he would willingly bear all the odium and all the onus of the outlay, if the edifice in question might henceforth bear his own name, instead of being inscribed with that of the people of Athens. But the people of ancient Athens indignantly rejected the idea, and refused to relinquish, even to the illustrious and princely Pericles, the glory of such a work.

Nor will the people of Boston, I am persuaded, be less unwilling to disown or abandon the credit which is legitimately theirs, for the noble hall in which we are assembled;—and while the munificence of benefactors, abroad and at home, and the diligence and devotion of Trustees or of Commissioners, may be remembered with gratitude by us all, the city herself—"our illustrious parent," as she was well entitled by our venerable benefactor, Mr. Jonathan Phillips—will never fail to claim the distinction as exclusively her own, that with no niggardly or reluctant hand, but promptly, liberally, and even profusely, if you will, she supplied the entire means for its erection.

These empty shelves will soon be filled. Gems and jewels more precious than any which the mines of either continent can ever yield, will soon find their places in the caskets and cabinets which have here been prepared for them; and living jewels, like those of the Roman matron of old—even the sons and daughters of our city—will soon be seen clustered around them.

It was a poetical and beautiful conceit of the great philosopher of our motherland—of Bacon, I mean, the contemporary and fellow-countryman of our Pilgrim Fathers—that "libraries are as the shrines where all the relics of the ancient saints, full of true virtue, and that without delusion or imposture, are preserved and reposed." But Cicero, methinks, did better justice to the theme. We are told that, when that illustrious orator and statesman saw the books, which composed his precious private library, fairly arranged in the apartment which he had provided for them, in his villa at Antium, he wrote to his friend Atticus, "*Postea vero quam Tyrannio mihi libros disposuit, mens addita videtur meis ædibus.*"*

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"Now that my books have been put in their places by your learned Greek, Tyrannio, a soul seems to have been added to my dwelling."

Yes, my friends; within these walls shall soon be gathered, not merely the mighty masters of philosophy and rhetoric, of history and poetry, whom the Roman Cicero recognized and reverenced as introducing a soul into his dwelling, but the great lights of all ages, the wise and learned of all climes—and those, especially, who have adorned a civilization, and vindicated a liberty, and illustrated a Christianity which that Cicero never conceived of, shall be congregated around them. Here soon shall many a waiting heart be kindled into something of the exultation of that good old Bishop of Norwich, when he exclaimed, on the sight of a great library, "What a happiness is it, that, without all offense of necromancy, I may here call up any of the ancient worthies of learning, whether human or divine, and confer with them of all my doubts!—that I can at pleasure summon up whole synods of reverend fathers and acute doctors, from all the coasts of the earth, to give their well-studied judgments on all points and questions which I may propose!"

And not the reverend fathers and acute doctors only shall answer to our call;—but here also the poets of all ages shall be ever ready to sing to us their choicest strains;—the dramatists of all ages to rehearse to us their richest scenes of wit or of woe;—the orators of all ages to recite to us the triumphant argument, or the thrilling appeal, which may have shaken empires from their base, or changed the current of the world's affairs. Here, too, the practical inventor and ingenious mechanic shall exhibit to us his specifications, his plans, and his drawings. Here the great interpreters of Nature shall unfold to us the mechanism of the heavens, the testimony of the rocks, and the marvels and mysteries of animal and vegetable life. Here the glowing pictures of fiction and fancy shall pass and repass before our vision, beneath the magic wand of a Scott, a Dickens, or a Cooper;—the living portraits of sages and patriots, of other lands and of our own land, be displayed to us by a Guizot or a Brougham, a Carlyle or a Campbell, a Sparks or an Irving;—and the grander panorama of history be unrolled for us by a Gibbon or a Grote, a Hume or a Macaulay, a Bancroft, a Prescott, or a Motley.

May God, in his goodness, grant that increased supplies of wisdom, and knowledge, and virtue, for us and our posterity, may be its rich and abundant fruits;—that it may be so sanctified by His grace to the highest interests of the whole community, that here, at least, the tree of knowledge may never be disunited from the tree of life;—and that, constituting, as it will, the complement and the crown of our great republican system of popular education, it may do its full part in bearing up and sustaining, for a thousand generations, a well-compacted and imperishable fabric of freedom;—of that freedom which rests upon intelligence, which must be regulated by law, and which can only be maintained by piety, philanthropy, and patriotism.

At the close of Mr. Winthrop's address, His Honor, Alexander H. Rice, mayor of the city, on receiving the keys of the building, made a very appropriate address, from which we give the closing paragraphs:—

Our city has sometimes been called the Athens of America; sometimes in compliment; let it never be in derision. The real claim to that shining title must rest upon the culture which is bestowed upon the institutions and the arts, which suggest a resemblance to the charming "Eye of Greece." In the rising greatness of that peerless city, we are told that the enlightened and patriotic arbiter of its fortunes, the patron of literature and learning, not only reclaimed the works of Homer from threatened oblivion, but established a public library at Athens, open to the free use of its citizens, and by these acts established there the home of the Muses. The golden age of Cimon and Pericles followed—the age of the Gymnasium, of the Academy, of the Agora, of the Temple of Eleusis, of the Parthenon, and of the Propylæa, and of all the culture which produced and surrounded them—that age of dazzling splendor which has not yet ceased to excite the wonder and admiration of mankind. I may not pause to compare the civilization of that age with ours, in all that is useful and beneficent to man; but if, in our contemplations of the glory of that era, there come to us impressions of exhaustless wealth, vast extent, and resources unapproachable to us of the present, let it be remembered that the wonderful Athens of history contained a population less than that of Boston to-day, and that the number of those who might exercise the rights of citizenship therein was less than our number of voters. How far the free library of Pisistratus affected the character and fortunes of the Grecian city, neither history nor tradition discloses; but we know that it preceded its power and splendor, and that these all came from the brain and the hand of man. Whether the noble institution, whose flattering auspices we here hail to-day, shall be the harbinger of a more illustrious future to our Athens, may depend, in some degree, upon the patronage which shall await upon these halls; for the power of knowledge is essentially the same in every period of time, though the fruits of its cultivation may be changed by the altered conditions of the race and the age.

But time forbids that I should pursue the theme; a single word more, and I have done. While here, gathered in joyous assemblage to-day, there are those—some of whom are before me, others are absent and distant—all of whom should have a place in our memories. It was the custom at certain Athenian festivals for the knights to make the circuit of the Agora, beginning at the statue of Hermes and paying their homage to the statues and temples around it. On this new year's festival, now first celebrated within these walls, since we have not yet their statues about us, let us summon to our thoughts, in living personality, the images of all the noble benefactors of our Public Library, the contributors of funds, of books, and of valued service; and let us pay to each the homage of our hearts' best gratitude, as they pass through the courts of our memories. Length of days and happiness to the living—fresh laurels for the memory of the departed—praises to Heaven for their gifts and their example.

Hon. Edward Everett, President of the Board of Trustees, on receiving the keys from the mayor, delivered an address, from which the following passages are taken:—

The City of Boston, owing to peculiar circumstances in its growth and history, has been, at all times, as I think, beyond most cities in the world, the object of an affectionate attachment on the part of its inhabitants—a feeling entitled to respect, and productive of good, even if it may sometimes seem to strangers overpartial in its manifestations. It is not merely its commanding natural situation, the triple hills on which it is enthroned, its magnificent bay and harbor, and the group of islands and islets that sparkle like emeralds on their surface—not merely this most admirable Common, which opens before our windows, delightful even at this season of the year, and affording us in summer, in its noble malls and shady walks, all that the country can boast of cool, and beautiful, and salubrious, transported to the heart of the city; "the poor man's pleasure-ground," as it has been well called, though a king might envy it;—nor the environs of our city, of surpassing loveliness, which inclose it on every side in kindly embrace; it is not solely nor principally these natural attractions which endear Boston to its citizens. Nor is it exclusively the proud and grateful memories of the past—of the high-souled fathers and mothers of the land, venerable in their self-denying virtues, majestic in the austere simplicity of their manners, conscientious in their errors, who, with amazing sacrifices, and hardships never to be described, sought out new homes in the wilderness, and transmitted to us delights and blessings which it was not given to themselves to enjoy—of those who in succeeding generations deserved well of their country—the pioneers of the Revolution, the men of the stamp-act age, whose own words and acts are stamped on the pages of history, in characters never to be effaced—of those who, when the decisive hour came, stood forth in that immortal hall, the champions of their country's rights, while it scarcely yet deserved the name of a country; it is not exclusively these proud and grateful associations, which attach the dutiful Bostonian to the city of his birth or adoption.

No, Mr. Mayor, it is not exclusively these, much as they contribute to strengthen the sentiment. It has its origin, in no small degree, in the personal relation in which Boston places herself to her children; in the parental interest which she cherishes in their welfare, which leads her to take them by the hand almost from the cradle—to train them up in the ascending series of her excellent free schools;

watching over them as a fond father watches over the objects of his love and hope; in a word, to confer upon them a first-rate school education at the public expense. Often have I attempted, but with very partial success, both in this country and in Europe, to persuade inquiring friends from countries and places where no such well-organized system of public education prevails, that our free schools do really afford to the entire population means of elementary education, of which the wealthiest citizen is glad to avail himself.

And now, Mr. Mayor, the enlightened counsels of the City Government are about to give new strength to those ties of gratitude and affection, which bind the hearts of the children of Boston to their beloved city. Hitherto the system of public education, excellent as it is, and wisely supported by a princely expenditure, does but commence the work of instruction and carry it to a certain point; well advanced, indeed, but far short of the goal. It prepares our young men for college, for the counting-room, for the office of the engineer, the *studio* of the artist, the shop of the artisan, the laboratory of the chemist, or whatever field of employment they may be destined to enter; but there it leaves them, without further provision for the culture of the mind. It disciplines the faculties, and forms a taste for the acquisition of knowledge, on the part of our young men and women; but it provides no means for their exercise and gratification. It gives them the elementary education requisite for their future callings, but withholds all facilities of access to those boundless stores of recorded knowledge, in every department, by which alone that elementary education can be completed and made effectual for the active duties of life.

But to-day our honored city carries on and perfects her work. The Trustees, from their first annual report to the present time, have never failed to recommend a first-class public library, such as that, sir, for whose accommodation you destine this noble building, as the completion of the great system of public education. Its object is to give to the entire population, not merely to the curious student, but to the inquisitive member of either of the professions, to the intelligent merchant, mechanic, machinist, engineer, artist, or artisan, in short, to all of every age and of either sex, who desire to investigate any subject, either of utility or taste, those advantages which, without such an ample public collection, must necessarily be monopolized by the proprietors of large private libraries, or those who by courtesy have the use of them; nay, to put within the reach of the entire community advantages of this kind, far beyond those which can be afforded by the largest and best provided private libraries. * * *

I am aware that there is still floating about in the community a vague prejudice against what is called book-learning. One sometimes hears doubts expressed of the utility of public libraries; opinions that they are rather ornamental than necessary or useful; and the fact that our time-honored city, never indifferent to the mental improvement of her children, has subsisted more than two centuries without one, is a sufficient proof that, until within a very few years, their importance has not been particularly felt. There is perhaps, even now a disposition to claim some superiority for what is called practical knowledge—knowledge gained by observation and experience, (which most certainly the Trustees would not disparage,) and a kind of satisfaction felt in holding up the example of self-taught men, in supposed contradistinction from those who have got their knowledge from books; and no name, perhaps, is so frequently mentioned in this connection as that of Franklin, who, because he had scarce any school education, and never went to college, has been hastily set down as a brilliant example to show the inutility of book-learning. It has been quoted to me in this way, and to show that libraries are of no use, within three days.

Now, Mr. Mayor, I need not tell you that there never was a greater mistake in point of fact. A thirst for books, which he spared no pains to allay, is the first marked trait disclosed in the character of Franklin; his success throughout the early period of his life can be directly traced to the use he made of them; and his very first important movement for the benefit of his fellow-men, was to found a public library, which still flourishes;—one of the most considerable in the country. Franklin not a book-man! whoever labors under that delusion, shows that somebody else is not much of a book-man, at least so far as concerns the biography of our illustrious townsman. We happen to have a little information on that subject in a book written by Franklin himself.

Hear his words: "From my *infancy* I was passionately fond of reading, and all the money that came into my hands was laid out in purchasing books. I was very fond of voyages. My first acquisition was Bunyan's Works, in separate little volumes. I afterward sold them, to enable me to buy R. Burton's '*Historical Collections*.' They were small Chapman's books, and cheap; forty volumes in all. My father's little library consisted chiefly of books in polemic divinity, most of which I read. I have often regretted, [and this is a sentence that might be inscribed on the lofty cornice of this noble hall,] that, at a time when I had such a thirst for knowledge, more proper books had not fallen in my way. . . . There was among them Plutarch's Lives, which I read abundantly, and I still think that time spent to great advantage. There was also a book of Defoe's, called an '*Essay on Projects*,'* and another of Dr. Mather's, called an '*Essay to do Good*,' which" did what, sir?—for I am now going to give you, in Franklin's own words (they carry with them the justification of every dollar expended in raising these walls,) the original secret of his illustrious career—what was the effect produced by reading these two little books of Defoe and Cotton Mather? "They perhaps gave me a turn of thinking, which had an influence on some of the principal future events of my life."

Yes, sir, in the reading of those books was the acorn, that sprouted into that magnificent oak; there was the fountain-drop, which a fairy might sip from a buttercup, from which has flowed the Missouri and the Mississippi—the broad, deep river of Franklin's fame, winding its way through the lapse of ages, and destined to flow on, till it shall be ingulfed in the ocean of eternity. From his "infancy," sir, "passionately fond of reading;" nay, with the appetite of a vulture, with the digestion of an ostrich, attacking the great folios of polemic divinity in his father's library. Not a dull boy, either, sir; not a precocious little book-worm; fond of play; doesn't dislike a little mischief; sometimes, as he tells us, "led the other boys into scrapes;" but in his intervals of play, in his leisure moments, up in the lonely garret, when the rest of the family were asleep, holding converse in his childhood with the grave old non-conformists, Howe, and Owen, and Baxter—communing with the austerest lords of thought; the demigods of puritanism—

Non sine diis animosus infans.

Franklin not a book-man? Why, he goes on to tell us that it was "this bookish inclination which at length determined his father to make him a printer," against his own inclination, which was for the sea; and when he had thus by constraint become a printer, his great consolation was, as he says, that "I now had access to better books. An acquaintance with the apprentices of booksellers enabled me sometimes to borrow a small one, which I was careful to return soon and clean. Often I sat up in my chamber reading the greatest part of the night, when the book was borrowed in the evening and to be returned in the morning, lest it should be found missing."

Then he made the acquaintance of Mr. Matthew Adams, an ingenious, sensible man, "who had a pretty collection of books." He frequented the printing office, took notice of the bright little apprentice, and "very kindly proposed to lend me such books as I chose to read." Having taken to a vegetable diet at the age of sixteen, he persuaded his brother to allow him in cash half the price of his board, lived upon potatoes and hasty pudding, soon found that he could save half even of that little allowance, (which could not have exceeded two-and-sixpence a week, lawful money,) and this poor little economy "was an additional fund for buying books." What would the poor, under-fed boy, who was glad to buy books on the savings of his potato diet, have said, could he have had free access to a hall like this, stored as it soon will be with its priceless treasures? Further, sir, while working as a journeyman in England, he says, "I made the acquaintance of one William Wilcox, a bookseller, whose shop was next door. He had an immense collection of second-hand books;"—(somewhat, I suppose, like our friend Burnham, in Cornhill;)—"circulating libraries were not then in use, but we agreed that, upon certain reasonable terms, which I have now forgotton, I might take, read, and return any of his works. This I esteemed a great advantage, and I made as much use of it as I could."

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* We have never seen Defoe's "*Essay on Projects*," or the man or woman who had. The Essay is not contained in our edition of Defoe's Works, in twenty volumes.

Finally, sir, as I have already said, Franklin's first important movement for the good of his fellow-men was the foundation of the public library in Philadelphia. At his instance, the members of a little club, to which he belonged, tradesmen and mechanics of narrow means, threw into common stock the few books which belonged to them. A subscription was obtained from fifty young men, principally tradesmen, of two pounds each, and ten shillings per annum, and with this little fund they began. "The books were imported, the library was opened one day in the week for lending them to the subscribers, on their promissory notes to pay double the value if not duly returned." "This was the mother," says Franklin, "of all the North American subscription libraries, now so numerous. It has become a great thing itself, and continually goes on increasing. These libraries have improved the general conversation of the Americans, made the common tradesmen and farmers as intelligent as most gentlemen from other countries, and, perhaps, have contributed in some degree to the stand so generally made throughout the colonies in defense of their privileges."

No, sir; if there is one lesson more than another directly deducible from the life of Franklin, it is the close connection of a thoroughly practical and useful life and career with books, libraries, and reading. If there is a thing on earth which would have gladdened his heart, could he have anticipated it, it would be the knowledge that his native city, in two generations after his death, would found a library like this, to give to the rising generation, and to the lovers of knowledge of every age, that access to books of which he so much felt the want. And could it be granted to him, even now, to return to his native city, which dwelt in his affections to the close of his life, his first visit would be to the center of the ancient burial-ground, where, in after life, he dutifully placed a marble slab on the graves of his parents; his second visit would be to the spot in Milk street where he was born; his third to the corner of Union and Hanover street, where he passed his childhood, in a house still standing; his fourth visit would be to the site of the free grammar school-house, where, as he says in his will, he received "his first instruction in literature," and which is now adorned with the statue which a grateful posterity has dedicated to his memory; and his last and longest would be to this noble hall, where you are making provision for an ample supply of that reading of which, "from his infancy, he was passionately fond."

The shades of evening are falling around us; those cressets, which lend us their mild and tasteful illumination, will soon be extinguished; and the first day of the new year, rich in the happy prospects we now inaugurate, will come to a close. May the blessing of Heaven give effect to its largest anticipations! A few more days—a few more years—will follow their appointed round, and we, who now exchange our congratulations on this magnificent new year's gift of our City Fathers, will have passed from the scene; but firm in the faith that the growth of knowledge is the growth of sound principles and pure morals, let us not doubt, that, by the liberality of the City Government and of our generous benefactors at home and abroad, a light will be kindled and go forth from these walls, now dedicated to the use of the Free Boston Public Library, which will guide our children and our children's children in the path of intelligence and virtue, till the sun himself shall fall from the heavens.

After reading the extracts from Franklin's "*Autobiography*," Mr. Everett added :—

In your presence, Mr. Mayor, and that of this vast assembly, on this first of January, 1858, I offer this copy of Franklin's "*Autobiography*," in Spark's edition, as a new year's gift to the Boston Public Library. Nay, sir, I am going to do more, and make the first, and perhaps the last, motion ever made in this hall; and that is, that every person present, of his own accord, if of age—with the consent of parent or guardian, if a minor—man, woman, boy, or girl, be requested, on going home, to select one good book, and, in memory of the poor boy, who half-fed himself to gratify his taste for reading, present it as a new year's gift to the Boston Public Library.

In consequence of this motion, many books (over 1400 in one month,) were received in the library, as donations.

HINTS ON READING.

SELECTED BY REV. T. H. VAIL.

"I no sooner come into the Library, but I bolt the door to me, excluding Lust, Ambition, Avarice, and all such vices, whose nurse is Idleness, the mother of Ignorance and Melancholy. In the very lap of eternity, among so many divine souls, I take my seat with so lofty a spirit, and sweet content, that I pity all that know not this happiness."

[HEINSIUS, of Leyden, in D'Israeli's Curiosities of Literature.]

"Read not to contradict and confute, nor to believe and take for granted, nor find talk and discourse, but to weigh and consider."

[BACON'S Essays—On Studies. Harpers' ed. p. 179.]

1. Definition of Reading.

Reading, in its true sense and use, is *study*—sometimes a laborious, sometimes an entertaining perusal of books—but always *the study of books.*—"Reading," says Dr. Watts, "is that *means or method of knowledge*, whereby we acquaint ourselves with what other men have published to the world, in their writings."—*Watts on the Improvement of the Mind*, p. 38.

2. Objects of Reading.

"The question recurs, What is the proper object of Reading? what the end to be kept in view, in the choice and perusal of books? One great end, doubtless, is *Knowledge*. .... One object of reading, then, is to acquire knowledge. But we must bear in mind that knowledge, in itself, is not so much an end as a means, and that we are always to keep in view its ulterior uses and applications. .... Knowledge brings with it *duties* which are not to be neglected. It is a *talent or trust;* and to enable us to employ it aright, we should understand well the end for which God has given us capacities for acquiring it. On no subject are men more likely to err; and how grievous the error is, and in what ways it manifests itself, let Lord Bacon teach. 'But the greatest error,' says that great writer, 'of all the rest, is the mistaking or misplacing of the last or farthest end of knowledge; for men have entered into a desire of learning and knowledge, sometimes upon, &c., ... seldom sincerely to give a true account of their gift of reason to the benefit and use of men, as if there were sought in knowledge a couch, &c., &c., and not *a rich store-house for the glory of the Creator and the relief of man's estate.*' Such, then, is the use of knowledge. It constitutes a rich store-house, whence we should draw materials for glorifying God, and improving man's estate. In other words knowledge is to be employed by us in doing good. ..... This remark leads us to notice another of the benefits to be derived from books, when judiciously selected and properly read. This is *the improvement of our intellectual powers and moral sentiments.* ..... So, again, *in regard to taste*. .... What is true of intellect and taste, is not less true of our *moral sentiments*. .... (Recapitulation.) *Why should we read?* Partly to procure immediate gratification, but principally,—1st, to acquire knowledge, both for its own sake, and for its uses: 2ndly, to improve the intellectual powers: 3dly, to refine taste: and 4thly, to strengthen the moral and religious sentiments."—*Professor Alonzo Potter, D. D. Advantages of Science, Harpers' Ed.*, pp. 14, 19, 20, 21, 23, 24, 31.

"In all our studies and pursuits of knowledge, let us remember that virtue and *vice*, sin and holiness, and the conformation of our hearts and lives to the duties of true religion and morality, are things of far more consequence than all the furniture of our understandings, and the richest treasures of mere speculative knowledge."—*Watts on the Mind*, p. 69.

3. General Advantages of Reading.

"These arts of reading and writing are of infinite advantage; for by them we are made partakers of the sentiments, observations, reasonings and improvements of all the learned world, in the most remote nations, and in former ages, almost from the beginning of mankind. . . . . . The advantages (of *reading*) are such as these: 1. By reading, we acquaint ourselves, in a very extensive manner, with the affairs, actions, and thoughts of the living and the dead, in the most remote nations, and in most distant ages; and that with as much ease, as though they lived in our own age and nation. By reading we may learn something from all parts of mankind. . . . . . . 2. By reading, we learn not only the actions and the sentiments of distant nations and ages, but we transfer to ourselves the knowledge and improvements of the most learned men, the wisest and the best of mankind, when or wheresoever they lived. For though many books have been written by weak and injudicious persons, yet the most of those books, which have obtained great reputation in the world, are the products of great and wise men in their several ages and nations. . . . 3. When we read good authors, we learn the *best* sentiments, even of those wise and learned men. For they studied hard, and committed to writing their maturest thoughts, and the result of their long study and experience. . . 4. It is another advantage of reading that we may review what we read, we may consult the page again and again, and meditate on it, at successive seasons, in our serenest and retired hours, having the book always at hand."—*Watts*, pp. 38, 41, 42.

"Written records constitute the only authentic memorials of the past; and, since those records have been multiplied by printing, and spread over the world, they are truly imperishable. Nor only so; they are now the property of the whole race. . . . . . Now almost all minds experience their enlightening and quickening influence. There is hardly an individual whose knowledge is not enlarged by the use of books; while, at the same time, multitudes are incited by them to add, by their own labors and discoveries, to the great sum of human attainments. Another advantage of the knowledge gained from books is, that . . . . . it is much of it arranged and systematized. Thus we are enabled to see the dependence and connection of different truths; and, what is more important, we learn to study *principles and laws*, instead of losing ourselves amid a multitude of incongruous facts. . . . . How important, then, that every one, who would cultivate in his own mind the true spirit of investigation, or who would acquire that power which results from knowledge, how important that he should become familiar *with such books* as illustrate the nature, and imbody the fruits of this system of inquiry."—*Potter: Advantages of Science*, pp. 16, 17.

4. Importance of Reading, to the Business Man, the Mechanic and the Manufacturer.

"Let me invite your attention to the consideration of the probable beneficial effect of the diffusion of scientific knowledge, among those practically and habitually employed in the mechanic and manufacturing arts, and it is likely to operate upon the improvement and advancement of the arts and sciences themselves. . . . . . Perhaps there is no better definition of science, than that it is knowledge acquired by the thoughts and the experience of many, and so methodically arranged as to be comprehended by any one. . . . . The theory of science, then, is the exposition of known facts, arranged in classes, and expressed in words. . . . . . The advantages of experience and observation on a large scale, are by no means peculiar to mechanical ingenuity. . . . . It is peculiarly true with regard to the chemistry of the arts. . . . . . In fact, the very foundation of modern chemistry, or, at least, of that branch of it termed pneumatic chemistry, was laid in a brewery. There had been no lack of ingenuity, no sparing of labor or expense, no flagging of zeal or curiosity among the old chemists. But the larger and more striking field of observation and combination afforded to Dr. Priestley, by the vats and gases of his neighbor, the brewer, opened a new world to inquiry. From the thick vapors of the brew-house, like one of the gigantic genii of oriental romance, arose that mighty science which has given to enlightened art a more than magical sway. . . . It is wonderful how the elements of the most precious knowledge are spread around us; how to the curious and instructed observer every thing is full and rich with the means of benefiting the human race. The slightest accession to our knowledge of nature, or our command over it, is sure, ultimately, to connect itself with some other truth, or to unfold its own powers or relations, and thus to lead on to some practical benefit, which the boldest conjecture could never have anticipated. The ignorant and the idle, suffer all such opportunities to pass by them as the vagrant breeze. But such will surely not be the case with industrious men, prepared by general science to turn those occasions to the best account. . . . . . I argue from experience. . . . Take, for instance, the history of one of the most recent and precious gifts which chemistry has made to medicine. A few years ago, a soap manufacturer of Paris, M. Courtois, remarked that the residuum of his lye, when exhausted of the alkali, produced a corrosion of his copper boilers, which struck him as deserving special inquiry. 'He put it,' says Mr. Herschel, 'into the hands of a scientific chemist for analysis, and the result was, the discovery of one of the most singular and important chemical elements, *iodine*. , ... Curiosity was excited; the origin of the new substance was traced to the sea-plants, from whose ashes the principal ingredient of soap is obtained, and ultimately to the sea-water itself. It was thence hunted through nature, discovered in salt mines and springs, and pursued into all bodies which have a marine origin; *among the rest into sponge.* A medical practitioner, (Dr. Coindet, a Swiss physician,) then called to mind a reputed remedy for the cure of one of the most grievous and unsightly disorders to which the human species is subject—the *goitre*. . . . . and which was said to have been originally cured by the ashes of burned sponge. Led by this indication, he tried the effect of iodine on that complaint, and the result established the extraordinary fact, that this substance, taken as a medicine, acts with the utmost promptitude and energy on goitre, dissipating the largest and most inveterate in a short time, and acting (of course with occasional failures, like all other medicines,) as a specific or natural antagonist against that odious deformity.' Now consider what a map of human misery, for a long series of generations to come, has been relieved or removed by this discovery, arising from *the single circumstance of a Parisian soap manufacturer being an observing man, who understood the uses and nature of chemical analysis.* . . . . . . Let us cross the channel to Great Britain, for some farther examples. . . . . *The Telescope*, in its earliest stages of invention had received all the improvement that could then be furnished by the genius of the great Galileo, the father of modern science, and by the superhuman philosophical sagacity of Sir Isaac Newton, as well as of their disciples and followers, the most learned and ingenious men of Europe, such as the English Hooke, the Dutch Huygens, and the German Euler.—The product of these labors was admirable proof of the power of human invention; yet it was accompanied *with imperfections, especially in the refracting telescope*, that seemed insuperable. . . . . . The removal of this defect was reserved for *John Dollond*, originally a silk weaver, and afterward an optician and instrument-maker, of London. Half a century after Newton's experments, Dollond conceived the idea, that the refractive powers of different kinds of glass might be made to correct each other. In this he completely succeeded. Had he not *been familiar with the science* of Newton, Dollond would never have attempted this discovery; had he not also been *a practical mechanic*, it is hardly probable that he would have succeeded. The incidental mention of the ultimate advantages derived by the art of navigation from the labors of Dollond, suggests to my mind another illustration, and recalls the name of *John Smeaton*. He was by regular trade, a philosophical instrument-maker, but his active mind had taken a broad range of rational curiosity and employment, embracing almost every thing in science or art, that could throw light on mechanical contrivance. His inventions of this sort were very numerous and ingenious, but his solid fame rests chiefly upon the erection of the Eddystone lighthouse. . . . . There are few narratives of more intense interest or varied instruction than his own account of this great work. . . . . . . The names and lives of our own distinguished benefactors of mankind—Franklin, and Rittenhouse, and Whitney, and Fulton, and Perkins—press upon my memory. . . . . . The history of Printing offers another tempting field of collateral illustration. . . . . . . I might tell of the Italian Aldus and his sons, of Henry Stephens, of Paris, and his learned family, of the Dutch Elgivirs, the English Bouyer, the Scotch Foulis and Duncan, and surely could not forget the noblest name of them all, our own Franklin. . . . . . I must also reluctantly refrain from detailing the studies, inventions and improvements of the potter, *Josiah Wedgewood*. . . . . But from among the names which thus crowd upon me, let me adduce one more bright example. . . . . It was about this season of the year, just seventy years ago, that the instrument-maker employed by the University of Glasgow, received from the professor of natural philosophy in that ancient seminary of learning, a broken model of the steam-engine, as then used, to be put in order for his lectures. . . . . . . An ordinary workman, after admiring the ingenuity of this imperfect machine, would have made the necessary repairs, sent it back to the lecture-room, and the world would have gone on as usual. But it had fallen into the hands of *James Watt*, a young mechanic, of singular and various inventive sagacity, and of most patient and persevering ingenuity, who, *in addition to much miscellaneous information, and some mathematical acquirement, had been led by a liberal curiosity to master all that was then known of chemistry, and theoretical natural philosophy in its broadest sense*. . . . . Look around for yourselves—on our rivers and lakes—on the manufactures of Europe and America, piled up in our shops—on the railroads which traverse, or are just about to traverse, our continent—on the wealth, the power, the rapid interchange of commerce and intelligence produced by the modern steam-engine, and then let me remind you, that all this is the fruit of the solitary labors and studies of a Glasgow work-shop; directed by an active, vigorous, daring, but most patient and persevering *mind, which knew how to use well the knowledge that other wise or ingenious men had previously reasoned out or discovered*. . . . . I have not yet touched upon the influence of knowledge, upon the operative and producing classes themselves, in improving the character, raising the thoughts, awakening sleeping talent, and thus qualifying this great and valuable body, for the able, just, right, wise and honorable discharge of all the duties of men, of citizens, of freemen, of patriots. This is alone, and in itself, a theme full of interest—full of excitement. . . Such were Saratoga's victors, such the brave men whose blood earned our liberties. Foremost among them was *the blacksmith* of Rhode Island, *Nathaniel Greene*; he whom Hamilton, while he honored Washington as 'the first *man* of the country,' did not hesitate to style 'the first *soldier* of the Revolution. . . . . . . There also was the *book-binder*, *Knox*, and from among *the mechanics* of New York, came forth our *Willet*, 'the bravest of the brave.' . . . . . Abroad, our interests were watched over, and our national dignity represented, by the *printer*, *Franklin*. . . . . Foremost in our councils at home, and enrolled among the immortal names of the committee of five, who prepared and reported the Declaration of Independence, was the *shoemaker*, *Roger Sherman*, a man self-educated and self-raised. . . . . . . Here were other names like these which I cannot now pause to recapitulate. . . . . Still I cannot forbear from paying a passing tribute to the memory of a townsman and a friend. . . . . . . The courage, seamanship, and ability of *Commodore Chauncey*, would have been exerted in vain, had they not been seconded by the skill, the enterprise, the science, the power of combination, and the ready and inexhaustible resources of his *ship-builder*, *Henry Eckford*. . . . . . . The ardor for improvement, the thirst for knowledge, manifested by the mechanics of this and others of our cities, are gratifying indeed. . . . . . . But they derive a tenfold interest and value from the greater results which they foretell, and the more glorious future they appear to usher in." *Gulian C. Verplanck's Discourse before the Mechanics' Institute of New York, Nov.* 27, 1833—passim.

5. Choice of Books.

"The world is full of books; but there are multitudes which are so ill-written, that they were never worthy any man's reading; and there are thousands more which may be good in their kind, but are worth nothing, when the month, or year, or occasion is past, for which they were written. Others may be valuable in themselves for some special purpose, or in some peculiar science, but are not fit to be perused by any but those who are engaged in that particular science or business. . . . . . It is of vast advantage or improvement of knowledge and saving time, for a young man to have the most proper books for his reading recommended by a judicious friend. . . . . . . There is yet another sort of books, (in addition to *books of science and complete treatises* on subjects, which are first recommended,) of which it is proper I should say something while I am treating on this subject; and these are *history*, *poesy*, *travels*, *books of diversion or amusement*; among which we may reckon also, little common *pamphlets*, *newspapers*, *or such like*. For many of these, I confess, *once reading may be sufficient*, where there is a tolerably good memory. . . . . . . Still let it be remembered, that where the historical narrative is of considerable moment, where the poesy, oratory, &c., shine with some degrees of perfection and glory, a single reading is neither sufficient to satisfy a mind, that has a true taste for this sort of writing; nor can we make the fullest and best improvement of them, without proper reviews, and that in our retirement as well as in company. . . . . . . Among these writings of the latter kind, we may justly reckon *short miscellaneous essays* on all manner of subjects; such as the Occasional Papers, the Tattlers, the Spectators, and some other books, that have been compiled out of the weekly or daily products of the press. . . . . . Among other books, which are proper and requisite, in order to improve our knowledge in general, or our acquaintance with any particular science, it is necessary that we should be furnished with *vocabularies and dictionaries of several sorts*, namely, of *common words*, *idioms*, *and phrases*, in order to explain their sense; of *technical words*, *or the terms of art*, to show their use in arts and sciences; of *names of men*, *countries*, *towns*, *rivers*, *&c.*, which are called *historical and geographical dictionaries*. &c. *These are to be consulted and used upon every occasion*. . . . . If such books are not at hand, you must supply the want of them, as well as you can, by consulting such as can inform you." *Watts on the Mind*, pp. 59, 69, 71, 72.

"A wise and good man was accustomed, in his devotion, to thank God for books. He did well; *good books*, *rightly used*, are among our greatest blessings. . . . . . . Books introduce us to the noblest minds of our race, and permit us to commune intimately with them, even at those privileged hours, when they obtain their brightest visions of truth, and pour forth their loftiest or most touching eloquence. It must be remembered, however, that *all books are not good books*, and that *even good books may be so read*, *as to fail of their appropriate ends*. Milton has said, that 'a wise man can sooner gather gold out of watching over them as a fond father watches over the objects of his love and hope; in a word, to confer upon them a first-rate school education at the public expense. Often have I attempted, but with very partial success, both in this country and in Europe, to persuade inquiring friends from countries and places where no such well-organized system of public education prevails, that our free schools do really afford to the entire population means of elementary education, of which the wealthiest citizen is glad to avail himself.

And now, Mr. Mayor, the enlightened counsels of the City Government are about to give new strength to those ties of gratitude and affection, which bind the hearts of the children of Boston to their beloved city. Hitherto the system of public education, excellent as it is, and wisely supported by a princely expenditure, does but commence the work of instruction and carry it to a certain point; well advanced, indeed, but far short of the goal. It prepares our young men for college, for the counting-room, for the office of the engineer, the *studio* of the artist, the shop of the artisan, the laboratory of the chemist, or whatever field of employment they may be destined to enter; but there it leaves them, without further provision for the culture of the mind. It disciplines the faculties, and forms a taste for the acquisition of knowledge, on the part of our young men and women; but it provides no means for their exercise and gratification. It gives them the elementary education requisite for their future callings, but withholds all facilities of access to those boundless stores of recorded knowledge, in every department, by which alone that elementary education can be completed and made effectual for the active duties of life.

But to-day our honored city carries on and perfects her work. The Trustees, from their first annual report to the present time, have never failed to recommend a first-class public library, such as that, sir, for whose accommodation you destine this noble building, as the completion of the great system of public education. Its object is to give to the entire population, not merely to the curious student, but to the inquisitive member of either of the professions, to the intelligent merchant, mechanic, machinist, engineer, artist, or artisan, in short, to all of every age and of either sex, who desire to investigate any subject, either of utility or taste, those advantages which, without such an ample public collection, must necessarily be monopolized by the proprietors of large private libraries, or those who by courtesy have the use of them; nay, to put within the reach of the entire community advantages of this kind, far beyond those which can be afforded by the largest and best provided private libraries. * * *

I am aware that there is still floating about in the community a vague prejudice against what is called book-learning. One sometimes hears doubts expressed of the utility of public libraries; opinions that they are rather ornamental than necessary or useful; and the fact that our time-honored city, never indifferent to the mental improvement of her children, has subsisted more than two centuries without one, is a sufficient proof that, until within a very few years, their importance has not been particularly felt. There is perhaps, even now a disposition to claim some superiority for what is called practical knowledge—knowledge gained by observation and experience, (which most certainly the Trustees would not disparage,) and a kind of satisfaction felt in holding up the example of self-taught men, in supposed contradistinction from those who have got their knowledge from books; and no name, perhaps, is so frequently mentioned in this connection as that of Franklin, who, because he had scarce any school education, and never went to college, has been hastily set down as a brilliant example to show the inutility of book-learning. It has been quoted to me in this way, and to show that libraries are of no use, within three days.

Now, Mr. Mayor, I need not tell you that there never was a greater mistake in point of fact. A thirst for books, which he spared no pains to allay, is the first marked trait disclosed in the character of Franklin; his success throughout the early period of his life can be directly traced to the use he made of them; and his very first important movement for the benefit of his fellow-men, was to found a public library, which still flourishes;—one of the most considerable in the country. Franklin not a book-man! whoever labors under that delusion, shows that somebody else is not much of a book-man, at least so far as concerns the biography of our illustrious townsman. We happen to have a little information on that subject in a book written by Franklin himself.

Hear his words: "From my *infancy* I was passionately fond of reading, and all the money that came into my hands was laid out in purchasing books. I was very fond of voyages. My first acquisition was Bunyan's Works, in separate little volumes. I afterward sold them, to enable me to buy R. Burton's '*Historical Collections*.' They were small Chapman's books, and cheap; forty volumes in all. My father's little library consisted chiefly of books in polemic divinity, most of which I read. I have often regretted, [and this is a sentence that might be inscribed on the lofty cornice of this noble hall,] that, at a time when I had such a thirst for knowledge, more proper books had not fallen in my way. . . . There was among them Plutarch's Lives, which I read abundantly, and I still think that time spent to great advantage. There was also a book of Defoe's, called an '*Essay on Projects*,'* and another of Dr. Mather's, called an '*Essay to do Good*,' which" did what, sir?—for I am now going to give you, in Franklin's own words (they carry with them the justification of every dollar expended in raising these walls,) the original secret of his illustrious career—what was the effect produced by reading these two little books of Defoe and Cotton Mather? "They perhaps gave me a turn of thinking, which had an influence on some of the principal future events of my life."

Yes, sir, in the reading of those books was the acorn, that sprouted into that magnificent oak; there was the fountain-drop, which a fairy might sip from a buttercup, from which has flowed the Missouri and the Mississippi—the broad, deep river of Franklin's fame, winding its way through the lapse of ages, and destined to flow on, till it shall be ingulfed in the ocean of eternity. From his "infancy," sir, "passionately fond of reading;" nay, with the appetite of a vulture, with the digestion of an ostrich, attacking the great folios of polemic divinity in his father's library. Not a dull boy, either, sir; not a precocious little book-worm; fond of play; doesn't dislike a little mischief; sometimes, as he tells us, "led the other boys into scrapes;" but in his intervals of play, in his leisure moments, up in the lonely garret, when the rest of the family were asleep, holding converse in his childhood with the grave old non-conformists, Howe, and Owen, and Baxter—communing with the austerest lords of thought; the demigods of puritanism—

Non sine diis animosus infans.

Franklin not a book-man? Why, he goes on to tell us that it was "this bookish inclination which at length determined his father to make him a printer," against his own inclination, which was for the sea; and when he had thus by constraint become a printer, his great consolation was, as he says, that "I now had access to better books. An acquaintance with the apprentices of booksellers enabled me sometimes to borrow a small one, which I was careful to return soon and clean. Often I sat up in my chamber reading the greatest part of the night, when the book was borrowed in the evening and to be returned in the morning, lest it should be found missing."

Then he made the acquaintance of Mr. Matthew Adams, an ingenious, sensible man, "who had a pretty collection of books." He frequented the printing office, took notice of the bright little apprentice, and "very kindly proposed to lend me such books as I chose to read." Having taken to a vegetable diet at the age of sixteen, he persuaded his brother to allow him in cash half the price of his board, lived upon potatoes and hasty pudding, soon found that he could save half even of that little allowance, (which could not have exceeded two-and-sixpence a week, lawful money,) and this poor little economy "was an additional fund for buying books." What would the poor, under-fed boy, who was glad to buy books on the savings of his potato diet, have said, could he have had free access to a hall like this, stored as it soon will be with its priceless treasures? Further, sir, while working as a journeyman in England, he says, "I made the acquaintance of one William Wilcox, a bookseller, whose shop was next door. He had an immense collection of second-hand books;"—(somewhat, I suppose, like our friend Burnham, in Cornhill;)—"circulating libraries were not then in use, but we agreed that, upon certain reasonable terms, which I have now forgotten, I might take, read, and return any of his works. This I esteemed a great advantage, and I made as much use of it as I could."

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* We have never seen Defoe's "*Essay on Projects*." or the man or woman who had. The Essay is not contained in our edition of Defoe's Works, in twenty volumes.

Finally, sir, as I have already said, Franklin's first important movement for the good of his fellow-men was the foundation of the public library in Philadelphia. At his instance, the members of a little club, to which he belonged, tradesmen and mechanics of narrow means, threw into common stock the few books which belonged to them. A subscription was obtained from fifty young men, principally tradesmen, of two pounds each, and ten shillings per annum, and with this little fund they began. "The books were imported, the library was opened one day in the week for lending them to the subscribers, on their promissory notes to pay double the value if not duly returned." "This was the mother," says Franklin, "of all the North American subscription libraries, now so numerous. It has become a great thing itself, and continually goes on increasing. These libraries have improved the general conversation of the Americans, made the common tradesmen and farmers as intelligent as most gentlemen from other countries, and, perhaps, have contributed in some degree to the stand so generally made throughout the colonies in defense of their privileges."

No, sir; if there is one lesson more than another directly deducible from the life of Franklin, it is the close connection of a thoroughly practical and useful life and career with books, libraries, and reading. If there is a thing on earth which would have gladdened his heart, could he have anticipated it, it would be the knowledge that his native city, in two generations after his death, would found a library like this, to give to the rising generation, and to the lovers of knowledge of every age, that access to books of which he so much felt the want. And could it be granted to him, even now, to return to his native city, which dwelt in his affections to the close of his life, his first visit would be to the center of the ancient burial-ground, where, in after life, he dutifully placed a marble slab on the graves of his parents; his second visit would be to the spot in Milk street where he was born; his third to the corner of Union and Hanover street, where he passed his childhood, in a house still standing; his fourth visit would be to the site of the free grammar school-house, where, as he says in his will, he received "his first instruction in literature," and which is now adorned with the statue which a grateful posterity has dedicated to his memory; and his last and longest would be to this noble hall, where you are making provision for an ample supply of that reading of which, "from his infancy, he was passionately fond."

The shades of evening are falling around us; those cressets, which lend us their mild and tasteful illumination, will soon be extinguished; and the first day of the new year, rich in the happy prospects we now inaugurate, will come to a close. May the blessing of Heaven give effect to its largest anticipations! A few more days—a few more years—will follow their appointed round, and we, who now exchange our congratulations on this magnificent new year's gift of our City Fathers, will have passed from the scene; but firm in the faith that the growth of knowledge is the growth of sound principles and pure morals, let us not doubt, that, by the liberality of the City Government and of our generous benefactors at home and abroad, a light will be kindled and go forth from these walls, now dedicated to the use of the FREE BOSTON PUBLIC LIBRARY, which will guide our children and our children's children in the path of intelligence and virtue, till the sun himself shall fall from the heavens.

After reading the extracts from Franklin's "*Autobiography*," Mr. Everett added:—

In your presence, Mr. Mayor, and that of this vast assembly, on this first of January, 1858, I offer this copy of Franklin's "*Autobiography*," in Spark's edition, as a new year's gift to the Boston Public Library. Nay, sir, I am going to do more, and make the first, and perhaps the last, motion ever made in this hall; and that is, that every person present, of his own accord, if of age—with the consent of parent or guardian, if a minor—man, woman, boy, or girl, be requested, on going home, to select one good book, and, in memory of the poor boy, who half-fed himself to gratify his taste for reading, present it as a new year's gift to the Boston Public Library.

In consequence of this motion, many books (over 1400 in one month,) were received in the library, as donations.

HINTS ON READING.

SELECTED BY REV. T. H. VAIL.

"I no sooner come into the Library, but I bolt the door to me, excluding Lust, Ambition, Avarice, and all such vices, whose nurse is Idleness, the mother of Ignorance and Melancholy. In the very lap of eternity, among so many divine souls, I take my seat with so lofty a spirit, and sweet content, that I pity all that know not this happiness."

[Heinsius, of Leyden, in D'Israeli's Curiosities of Literature.]

"Read not to contradict and confute, nor to believe and take for granted, nor find talk and discourse, but to weigh and consider."

[Bacon's Essays—On Studies. Harpers' ed. p. 179.]

1. Definition of Reading.

Reading, in its true sense and use. is *study*—sometimes a laborious, sometimes an entertaining perusal of books—but always *the study of books.*—"Reading," says Dr. Watts, "is that *means or method of knowledge*, whereby we acquaint ourselves with what other men have published to the world, in their writings."—*Watts on the Improvement of the Mind*, p. 38.

2. Objects of Reading.

"The question recurs, What is the proper object of Reading? what the end to be kept in view. in the choice and perusal of books? One great end, doubtless, is *Knowledge*. . . . . One object of reading, then. is to acquire knowledge. But we must bear in mind that knowledge, in itself, is not so much an end as a means, and that we are always to keep in view its ulterior uses and applications. . . . . Knowledge brings with it *duties* which are not to be neglected. It is a *talent or trust;* and to enable us to employ it aright, we should understand well the end for which God has given us capacities for acquiring it. On no subject are men more likely to err; and how grievous the error is, and in what ways it manifests itself. let Lord Bacon teach. 'But the greatest error,' says that great writer, 'of all the rest, is the mistaking or misplacing of the last or farthest end of knowledge; for men have entered into a desire of learning and knowledge, sometimes upon, &c., ... seldom sincerely to give a true account of their gift of reason to the benefit and use of men, as if there were sought in knowledge a couch. &c., &c., and not *a rich store-house for the glory of the Creator and the relief of man's estate.*' Such, then, is the use of knowledge. It constitutes a rich store-house, whence we should draw materials for glorifying God, and improving man's estate. In other words knowledge is to be employed by us in doing good. . . . . This remark leads us to notice another of the benefits to be derived from books, when judiciously selected and properly read. This is *the improvement of our intellectual powers and moral sentiments*. . . . . So, again. *in regard to taste*. . . . What is true of intellect and taste, is not less true of our *moral sentiments*. . . . . (Recapitulation.) *Why should we read?* Partly to procure immediate gratification, but principally,—1st, to acquire knowledge, both for its own sake, and for its uses: 2ndly, to improve the intellectual powers: 3dly, to refine taste: and 4thly, to strengthen the moral and religious sentiments."—*Professor Alonzo Potter, D. D. Advantages of Science, Harpers' Ed.*, pp. 14, 19, 20, 21, 23, 24, 31.

"In all our studies and pursuits of knowledge, let us remember that virtue and vice, sin and holiness, and the conformation of our hearts and lives to the duties of true religion and morality, are things of far more consequence than all the furniture of our understandings, and the richest treasures of mere speculative knowledge."—*Watts on the Mind*, p. 69.

3. General Advantages of Reading.

"These arts of reading and writing are of infinite advantage; for by them we are made partakers of the sentiments, observations, reasonings and improvements of all the learned world, in the most remote nations, and in former ages, almost from the beginning of mankind. . . . . . The advantages (of reading) are such as these: 1. By reading, we acquaint ourselves, in a very extensive manner, with the affairs, actions, and thoughts of the living and the dead, in the most remote nations, and in most distant ages; and that with as much ease, as though they lived in our own age and nation. By reading we may learn something from all parts of mankind. . . . . . . 2. By reading, we learn not only the actions and the sentiments of distant nations and ages, but we transfer to ourselves the knowledge and improvements of the most learned men, the wisest and the best of mankind, when or wheresoever they lived. For though many books have been written by weak and injudicious persons, yet the most of those books, which have obtained great reputation in the world, are the products of great and wise men in their several ages and nations. . . . 3. When we read good authors, we learn the *best* sentiments, even of those wise and learned men. For they studied hard, and committed to writing their maturest thoughts, and the result of their long study and experience. . . 4. It is another advantage of reading that we may review what we read, we may consult the page again and again, and meditate on it, at successive seasons, in our serenest and retired hours, having the book always at hand."—*Watts*, pp. 38, 41, 42.

"Written records constitute the only authentic memorials of the past; and, since those records have been multiplied by printing, and spread over the world, they are truly imperishable. Nor only so; they are now the property of the whole race. . . . . . Now almost all minds experience their enlightening and quickening influence. There is hardly an individual whose knowledge is not enlarged by the use of books; while, at the same time, multitudes are incited by them to add, by their own labors and discoveries, to the great sum of human attainments. Another advantage of the knowledge gained from books is, that . . . . . it is much of it arranged and systematized. Thus we are enabled to see the dependence and connection of different truths; and, what is more important, we learn to study *principles and laws*, instead of losing ourselves amid a multitude of incongruous facts. . . . . How important, then, that every one, who would cultivate in his own mind the true spirit of investigation, or who would acquire that power which results from knowledge, how important that he should become familiar *with such books* as illustrate the nature, and imbody the fruits of this system of inquiry."—*Potter: Advantages of Science*, pp. 16, 17.

4. Importance of Reading, to the Business Man, the Mechanic and the Manufacturer.

"Let me invite your attention to the consideration of the probable beneficial effect of the diffusion of scientific knowledge, among those practically and habitually employed in the mechanic and manufacturing arts, and it is likely to operate upon the improvement and advancement of the arts and sciences themselves. . . . . . Perhaps there is no better definition of science, than that it is knowledge acquired by the thoughts and the experience of many, and so methodically arranged as to be comprehended by any one. .... The theory of science, then, is the exposition of known facts, arranged in classes. and expressed in words. ..... The advantages of experience and observation on a large scale. are by no means peculiar to mechanical ingenuity. .... It is peculiarly true with regard to the chemistry of the arts. ..... In fact, the very foundation of modern chemistry, or. at least, of that branch of it termed pneumatic chemistry, was laid in a brewery. There had been no lack of ingenuity, no sparing of labor or expense, no flagging of zeal or curiosity among the old chemists. But the larger and more striking field of observation and combination afforded to Dr. Priestley, by the vats and gases of his neighbor, the brewer, opened a new world to inquiry. From the thick vapors of the brew-house, like one of the gigantic genii of oriental romance, arose that mighty science which has given to enlightened art a more than magical sway. ... It is wonderful how the elements of the most precious knowledge are spread around us; how to the curious and instructed observer every thing is full and rich with the means of benefiting the human race. The slightest accession to our knowledge of nature, or our command over it, is sure, ultimately, to connect itself with some other truth, or to unfold its own powers or relations, and thus to lead on to some practical benefit, which the boldest conjecture could never have anticipated. The ignorant and the idle, suffer all such opportunities to pass by them as the vagrant breeze. But such will surely not be the case with industrious men, prepared by general science to turn those occasions to the best account. ..... I argue from experience. ... Take, for instance, the history of one of the most recent and precious gifts which chemistry has made to medicine. A few years ago, a soap manufacturer of Paris, M. Courtois, remarked that the residuum of his lye, when exhausted of the alkali, produced a corrosion of his copper boilers, which struck him as deserving special inquiry. 'He put it,' says Mr. Herschel, 'into the hands of a scientific chemist for analysis, and the result was, the discovery of one of the most singular and important chemical elements, *iodine*. ,....... Curiosity was excited; the origin of the new substance was traced to the sea-plants, from whose ashes the principal ingredient of soap is obtained, and ultimately to the sea-water itself. It was thence hunted through nature, discovered in salt mines and springs, and pursued into all bodies which have a marine origin; *among the rest into sponge*. A medical practitioner, (Dr. Coindet, a Swiss physician,) then called to mind a reputed remedy for the cure of one of the most grievous and unsightly disorders to which the human species is subject—the *goitre*..... and which was said to have been originally cured by the ashes of burned sponge. Led by this indication, he tried the effect of iodine on that complaint, and the result established the extraordinary fact, that this substance, taken as a medicine, acts with the utmost promptitude and energy on goitre, dissipating the largest and most inveterate in a short time, and acting (of course with occasional failures, like all other medicines,) as a specific or natural antagonist against that odious deformity.' Now consider what a map of human misery, for a long series of generations to come, has been relieved or removed by this discovery, arising from *the single circumstance of a Parisian soap manufacturer being an observing man, who understood the uses and nature of chemical analysis*. ...... Let us cross the channel to Great Britain, for some farther examples. .... *The Telescope*, in its earliest stages of invention had received all the improvement that could then be furnished by the genius of the great Galileo, the father of modern science, and by the superhuman philosophical sagacity of Sir Isaac Newton, as well as of their disciples and followers, the most learned and ingenious men of Europe, such as the English Hooke, the Dutch Huygens, and the German Euler.— The product of these labors was admirable proof of the power of human invention; yet it was accompanied *with imperfections, especially in the refracting telescope*, that seemed insuperable. ...... The removal of this defect was reserved for *John Dollond*, originally a silk weaver, and afterward an optician and instrument-maker, of London. Half a century after Newton's experments, Dollond conceived the idea, that the refractive powers of different kinds of glass might be made to correct each other. In this he completely succeeded. Had he not *been familiar with the science* of Newton, Dollond would never have attempted this discovery; had he not also been *a practical mechanic*, it is hardly probable that he would have succeeded. The incidental mention of the ultimate advantages derived by the art of navigation from the labors of Dollond, suggests to my mind another illustration, and recalls the name of *John Smeaton*. He was by regular trade, a philosophical instrument-maker, but his active mind had taken a broad range of rational curiosity and employment, embracing almost every thing in science or art, that could throw light on mechanical contrivance. His inventions of this sort were very numerous and ingenious, but his solid fame rests chiefly upon the erection of the Eddystone lighthouse. . . . . There are few narratives of more intense interest or varied instruction than his own account of this great work. . . . . . . The names and lives of our own distinguished benefactors of mankind—Franklin, and Rittenhouse, and Whitney, and Fulton, and Perkins —press upon my memory. . . . . . The history of Printing offers another tempting field of collateral illustration. . . . . . . I might tell of the Italian Aldus and his sons, of Henry Stephens, of Paris, and his learned family, of the Dutch Elgivirs, the English Bouyer, the Scotch Foulis and Duncan, and surely could not forget the noblest name of them all, our own Franklin. . . . . . I must also reluctantly refrain from detailing the studies, inventions and improvements of the potter, *Josiah Wedgewood*. . . . . But from among the names which thus crowd upon me, let me adduce one more bright example. . . . . It was about this season of the year, just seventy years ago, that the instrument-maker employed by the University of Glasgow, received from the professor of natural philosophy in that ancient seminary of learning, a broken model of the steam-engine, as then used, to be put in order for his lectures. . . . . . . An ordinary workman, after admiring the ingenuity of this imperfect machine, would have made the necessary repairs, sent it back to the lecture-room, and the world would have gone on as usual. But it had fallen into the hands of *James Watt*, a young mechanic, of singular and various inventive sagacity, and of most patient and persevering ingenuity, who, *in addition to much miscellaneous information, and some mathematical acquirement, had been led by a liberal curiosity to master all that was then known of chemistry, and theoretical natural philosophy in its broadest sense*. . . . . Look around for yourselves —on our rivers and lakes—on the manufactures of Europe and America, piled up in our shops—on the railroads which traverse, or are just about to traverse, our continent—on the wealth, the power, the rapid interchange of commerce and intelligence produced by the modern steam-engine, and then let me remind you, that all this is the fruit of the solitary labors and studies of a Glasgow work-shop; directed by an active, vigorous, daring, but most patient and persevering *mind, which knew how to use well the knowledge that other wise or ingenious men had previously reasoned out or discovered*. . . . . I have not yet touched upon the influence of knowledge, upon the operative and producing classes themselves, in improving the character, raising the thoughts, awakening sleeping talent, and thus qualifying this great and valuable body, for the able, just, right, wise and honorable discharge of all the duties of men, of citizens, of freemen, of patriots. This is alone, and in itself, a theme full of interest —full of excitement. . . Such were Saratoga's victors, such the brave men whose blood earned our liberties. Foremost among them was *the blacksmith* of Rhode Island, *Nathaniel Greene*; he whom Hamilton, while he honored Washington as 'the first *man* of the country,' did not hesitate to style 'the first *soldier* of the Revolution. . . . . . . There also was the *book-binder*, *Knox*, and from among *the mechanics* of New York, came forth our *Willet*, 'the bravest of the brave.' . . . . . Abroad, our interests were watched over, and our national dignity represented, by the *printer*, *Franklin*. . . . . Foremost in our councils at home, and enrolled among the immortal names of the committee of five, who prepared and reported the Declaration of Independence, was the *shoemaker*, *Roger Sherman*, a man self-educated and self-raised. . . . . . . Here were other names like these which I cannot now pause to recapitulate. . . . . Still I cannot forbear from paying a passing tribute to the memory of a townsman and a friend. . . . . . . The courage, seamanship, and ability of *Commodore Chauncey*, would have been exerted in vain, had they not been seconded by the skill, the enterprise, the science, the power of combination, and the ready and inexhaustible resources of his *ship-builder*, *Henry Eckford*. . . . . . . The ardor for improvement, the thirst for knowledge, manifested by the mechanics of this and others of our cities, are gratifying indeed. . . . . But they derive a tenfold interest and value from the greater results which they foretell, and the more glorious future they appear to usher in." *Gulian C. Verplanck's Discourse before the Mechanics' Institute of New York, Nov.* 27, 1833—passim.

5. Choice of Books.

"The world is full of books; but there are multitudes which are so ill-written, that they were never worthy any man's reading; and there are thousands more which may be good in their kind, but are worth nothing, when the month, or year, or occasion is past, for which they were written. Others may be valuable in themselves for some special purpose, or in some peculiar science, but are not fit to be perused by any but those who are engaged in that particular science or business. . . . . . It is of vast advantage or improvement of knowledge and saving time, for a young man to have the most proper books for his reading recommended by a judicious friend. . . . . . . There is yet another sort of books, (in addition to *books of science and complete treatises* on subjects, which are first recommended,) of which it is proper I should say something while I am treating on this subject; and these are *history*, *poesy*, *travels*, *books of diversion or amusement*; among which we may reckon also. little common *pamphlets*, *newspapers*, *or such like*. For many of these, I confess, *once reading may be sufficient*, where there is a tolerably good memory. . . . . . . Still let it be remembered, that where the historical narrative is of considerable moment, where the poesy, oratory, &c., shine with some degrees of perfection and glory, a single reading is neither sufficient to satisfy a mind, that has a true taste for this sort of writing; nor can we make the fullest and best improvement of them, without proper reviews, and that in our retirement as well as in company. . . . . . . Among these writings of the latter kind, we may justly reckon *short miscellaneous essays* on all manner of subjects; such as the Occasional Papers, the Tattlers, the Spectators, and some other books, that have been compiled out of the weekly or daily products of the press. . . . . . Among other books, which are proper and requisite, in order to improve our knowledge in general, or our acquaintance with any particular science, it is necessary that we should be furnished with *vocabularies and dictionaries of several sorts*, namely, of *common words*, *idioms*, *and phrases*, in order to explain their sense; of *technical words*, *or the terms of art*, to show their use in arts and sciences; of *names of men*, *countries*, *towns*, *rivers*, *&c.*, which are called *historical and geographical dictionaries*, &c. *These are to be consulted and used upon every occasion*. . . . . If such books are not at hand, you must supply the want of them, as well as you can, by consulting such as can inform you." *Watts on the Mind*, pp. 59, 69, 71, 72.

"A wise and good man was accustomed, in his devotion, to thank God for books. He did well; *good books*, *rightly used*, are among our greatest blessings. . . . . . . Books introduce us to the noblest minds of our race, and permit us to commune intimately with them, even at those privileged hours, when they obtain their brightest visions of truth, and pour forth their loftiest or most touching eloquence. It must be remembered, however, that *all books are not good books*, and that *even good books may be so read*, *as to fail of their appropriate ends*. Milton has said, that 'a wise man can sooner gather gold out of the drossiest volume, than a fool, wisdom out of Scripture.' It is certain that the effect of reading depends nearly as much on the disposition and taste of the reader, as on the character of the writer. Hence the great importance of considering not only *what* we read, but also in what *way*, and for what *ends*. . . . . A love of books can be acquired only by those who find pleasure in using them; and hence, whoever would cultivate in himself or others this most desirable taste, *should select, especially at first*, such works as can be read with sustained and quickened attention. But let it not be forgotten, that *such* books, if read *only to amuse* and entertain, must, if *good, fail* of much of their effect, while, *if bad, their influence will be deplorable.* . . . . By degrading them into instruments of momentary pleasure, we shall lose sight of their true worth, and learn to confound them with that herd of books, usually known as 'light reading;' books which seem to have been written in order to be *once read*, and then *forever forgotten.* Soon, too, we shall disrelish all books than contain any serious matter, and be content only with those of the most frivolous and exciting kind. These last will claim every hour that can be allotted to *reading;* and happy shall we be, if they do not *steal hours that ought to have been given to study.* . . . . . To this danger we are peculiarly exposed in our own day. . . . . We should choose books that will exercise the faculty of close and continuous *attention*, and as we advance, we should subject it to the necessity of more strenuous and protracted effort. They should be books, too, which require us to *think;* which sometimes incline us to close our volume, that we may review the arguments and statements of the writer, and test them by the rules of sound reasoning; books, which call us to analyze what is complicated, to arrest what is fugitive, and trace out what is subtle; which suggest new subjects for reflection and inquiry, and gradually lead us to appreciate and enjoy the pleasure that results from the mere exercise of our intellectual powers. . . . . So, again, in regard to *taste.* All men have been endowed, though in different degrees, with a relish for what is beautiful or perfect of its kind. . . . . . . Hence, books, as well as companions, should be *selected with reference to the cultivation*, not only of the understanding, but also of the taste. And in this respect we are exposed to much danger. Not a few of the works of our day (especially those of a fictitious and periodical character—works, too, which command enthusiastic applause,) are directly calculated to encourage a false taste in literature, as well as a vicious tone in manners and morals. . . . . . . What is true of intellect and taste is not less true of our *moral sentiments.* . . . . And, as our moral judgments, moreover, are insensibly but powerfully affected by companions, so are they by books—companions, against whom we are apt to be least on our guard, whose instructions we are disposed to receive with a too implicit faith, and whose society we enjoy at those seasons of relaxation, when the heart is most open to influence. It is nearly an axiom, that people will not be better than the books they read. . . . . It is important that all books be proscribed, which inculcate indifference to moral distinctions; which tend, however indirectly, or insidiously, to excite our evil passions; which exhibit the guilty and profligate as objects of sympathy and admiration; or which serve to lessen, in the least, our reverence for principle, or our hatred of a mean and time-serving policy. . . . . . .In thus explaining the objects which ought to be kept in view in reading, I have, in effect, furnished rules for judging of books, of their character and value. If *one great end of reading* be to enlarge our knowledge, then we should, for the most part, read no books which do not *furnish useful information.* I say, *for the most part*, because we *sometimes* read rather to improve taste, quicken and cultivate imagination, or discipline reason, rather than to gain knowledge. Hence *another rule*, by which we may try a book, is *the effect it has upon the understanding.* Does it require thought, and excite to reflection? Does it deal in *sound reasoning* only, avoiding all specious fallacies, and making no appeals to mere prejudice or passion? Does it cultivate in our minds a disinterested *love of truth?* . . . . If, on the other hand, it be a *work of imagination or taste*, it should be tried by *its influence on the sensitive part of our nature.* If it pro-sent us with images of beauty and simplicity, enable us to view the works of nature and art, with a keener and more discriminating relish, inspire us with a love for the perfect, and, above all, if it strengthen and animate our noble sentiments of virtue, it merits frequent and careful perusal. But, *if otherwise*, &c., I need not add, that it is a book to be reprobated and avoided. . . . . WHAT SHOULD WE READ? Only good books; which Milton describes as 'the precious life-blood of master-spirits, embalmed and treasured up on purpose to a life beyond life.' To know whether a book be good, consider, 1st, whether it adds to our sum of knowledge: 2ndly, whether it induces thought, and exercises reason: 3dly, whether it improves taste: and 4thly, whether it strengthens conscience.'—*Dr. Potter: Advantages of Science*, pp. 9—12. 22—27. 31.

"Read *always the best and most recent book on the subject which you wish to investigate.* 'You are to remember,' says Pliny the younger, 'that the most approved authors of each sort are to be carefully chosen, for, as it has been well observed, though we should *read much*, we should not *read many* authors.'"—*Dr. Potter: Handbook for Readers*, p. 18.

6. SYSTEMATIC READING; OR READING IN COURSES, OR BY SUBJECTS.

"Some prejudice, against what are called courses of study, has been justly provoked by the great number and variety of those which have been proposed from time to time. . . . . . . At the outset, *almost any course of reading* is better than the desultory and irregular habits which prevail so extensively. When once the student has acquired a taste for good books, and some just ideas of the object and uses of reading, he may be safely left to glean for himself, from the counsels of others, such hints and directions as are best adapted to his own case. . . . . Do not become so far enslaved by any system or course of study, as to think it may not be altered, when alteration would contribute to the healthy and improving action of the mind. . . . . Beware, on the other hand, of *frequent changes* in your *plan* of study. This is the besetting sin of young persons. 'No, take your course wisely, but firmly,' says Wirt, 'and having taken it hold upon it with heroic resolution, and the Alps and Pyrenees will sink before you. The whole empire of learning will be at your feet, while those who set out with you, *but stopped to change their plans*, are *yet* employed in the very profitable business of changing their plans. Let your motto be, *Perseverando vinces.* (*by perseverance thou shalt conquer.*) Practice upon it, and you will be convinced of its value, by the distinguished eminence to which it will conduct you.' . . . . . Study *subjects*, rather than books; therefore, compare *different authors* on the *same subjects*; the *statements* of authors, with information collected from *other sources*; and the conclusions drawn by a writer with the rules of sound logic. 'Learning,' says Feltham, 'falls far short of wisdom; nay, so far that you scarcely find a greater fool than is sometimes a mere scholar.' . . . . 'I take care,' says one of the profoundest and most versatile scholars in England, as quoted by Mr. Warren, in his Law Studies, 'always to ascertain the value of what I look at, and if satisfied on that score, I most carefully stow it away. I pay, besides, frequent visits to my 'magazine,' and keep an inventory of at least every thing important, which I frequently compare with my stores. It is, however, the *systematic disposition and arrangement* I adopt, which lightens the labors of memory. I was by no means remarkable for memory, when young; on the contrary, I was considered rather defective on that score.' . . . . . . *Dare to be ignorant of many things.* 'In a celebrated satire, (*the Pursuits of Literature*) much read in my youth,' says Dr. Quincy, 'and which I myself read about twenty-five years ago, I remember one counsel there addressed to young men, but, in fact, of universal application. I call upon *them*, said the author, to *dare* to be ignorant of many things; a wise counsel and justly expressed. . . . . *A good scheme of study will soon show itself to be such by this one test*, that it will exclude as powerfully as it will appropriate; it will be a *system* of repulsion no less than of attraction; once thoroughly possessed and occupied by the deep and genial pleasures of one truly intellectual pursuit, you will be easy and indifferent to all others that had previously teased you with transient excitement."—*Dr. Potter: Handbook for Readers*, pp. 15—18, 20, 21.

"In learning any new thing, there should be as little as possible first proposed to the mind at once. That being understood, and *fully mastered*, proceed to the *next* adjoining part, yet unknown. This is a slow, but safe and sure way to arrive at knowledge. The mind will be able, in this manner, to cope with great difficulties, and prevail over them, with amazing and happy success. . . . . . Engage not the mind in the intense pursuit of too many things at once; especially, such as have no relation to one another. This will be ready to distract the understanding, and hinder it from attaining *perfection in any one subject of study*. . . . . . In the pursuit of every valuable subject of knowledge, keep the end always in your eye, and be not diverted from it by every petty trifle you meet with in the way. . . . . . Be not satisfied with a mere knowledge of the best *authors*, that treat of any subject, instead of acquainting yourselves *thoroughly with the subject itself*."—*Dr. Watts on the Mind*, pp. 131—133, 72.

7. Reading conjoined with Thinking.

"Deal freely with every author you read; and yield up your assent only to evidence and just reasoning on the subject. . . . . In the compositions of men, remember, you are a man as well as they; and it is not their reason, but your own, that is given to guide you, when you arrive at years of discretion. . . . Enter into the sense and argument of the authors you read; examine all their proofs, and then judge of the truth or falsehood of their opinion. . . You will acquire by degrees a habit of judging justly, and of reasoning well, in imitation of the good writer, whose works you peruse. . . . Never apply yourself to read any human author, with a determination beforehand either for or against him; nor with a settled resolution to believe or disbelieve, to confirm or to oppose whatsoever he says; but always read with design to lay your mind open to truth, and to embrace it, as well as to reject every falsehood, though it appears under ever so fair a disguise. . . . . . Never *let an unknown word pass in your reading*, without seeking for its meaning. . . . And, indeed, how many volumes soever of learning a man possesses, he is still deplorably poor in his understanding, till *he has made these several parts of learning his own property*, by reasoning, by judging for himself, and remembering what he has read.—*Dr. Watts on the Mind*, pp. 61, 62, 66, 67, 72, 73.

"Says Locke, 'Reading furnishes the mind only with *materials* of knowledge; it is *thinking* that makes what we read *ours*.' . . . Says Dugald Stewart, 'nothing, in truth, has such a tendency *to weaken*, not only the powers of invention, but the intellectual powers in general, as a habit of *extensive and various reading without reflection*.' . . . Accustom yourself to refer whatever you read to the general head to which it belongs, and trace it, *if a fact*, to the *principle* it involves or illustrates; *if a principle*, to the *facts* which it produces or explains."—*Dr. Potter: Handbook for Readers*, pp. 16, 17, 19.

"*Reading, to be useful*, should *be combined with reflection*. Books can afford but little improvement to those who do not *think as well as read*. . . . . . Thus we see the great necessity of reading with deliberation; and may I not add, that in this respect, *laboring people*, and those whose pursuits give to them almost constant engagement, *have advantages which they are not apt to appreciate*. By reading at intervals, some portion of a good book, and then carrying the matter with them to their places of business, as a subject for thought and conversation, they will soon discover that the subject grows upon them in interest, that their views insensibly become clearer and more enlarged, and that useful reflections, not suggested by the author, rise before their minds. And thus it is, *that men of active pursuits are more apt, as all expe* *rience testifies, to accumulate useful knowledge, than those whose lives are passed in leisure and in the midst of books.* . . . . . Let me advise, then, that *books be read deliberately.* The old maxim, that 'if a thing be worth doing at all, it is worth doing well.' is peculiarly applicable to reading. A book run over hastily, is rarely understood; if not understood, it is not remembered ; and if not remembered, the time spent in reading it is lost. . . . By deep and diligent meditation, we (should) acquire something which may truly be called our own; for, as Milton says :—who reads

> 'Incessantly, and to his reading brings not
> A spirit and judgment equal or superior,
> Uncertain and unsettled still remains,
> Deep versed in books, but shallow in himself.' "

Dr. Potter: Advantages of Science, pp. 17, 18, 27, 30.

8. Social or Class Reading.

'If three or four persons agree to *read the same book, and each brings his own remarks upon it,* at some set hours appointed for conversation, and they communicate, mutually, their sentiments on the subjects, and debate about it in a friendly manner, the practice will render the reading of any author more abundantly beneficial to every one of them. . . . . If several persons engaged in the same study, take *into their hands distinct treatises on one subject,* and appoint a season of communication once a week, they may inform each other in a brief manner, concerning the sense, sentiments and method of those several authors, and thereby promote each other's improvement, &c. . . . . Talking over the things which you have read to your companions, on the first proper opportunity, is a most useful manner of review or repetition, in order to fix them upon the mind. Teach them to your younger friends, in order to establish your own knowledge, while you communicate it to them."—*Dr. Watts on the Mind.* pp. 60, 61, 178.

" 'Company and conversation,' says Feltham, 'are the best instructors for a noble nature.' 'An engagement and combating of wits,' says Erasmus, 'does, in an extraordinary manner, both show the strength of geniuses, rouses them and augments them. If you are in doubt of any thing, do not be ashamed to ask, or, if you have committed an error, be corrected."—*Dr. Potter: Hand-book for Readers*, p. 19.

"*Some books should be read in company with others, especially with our family.* We never relish a good book so highly as when we read it with a friend of congenial tastes. . . . . . And in this plan of social reading, what friends so proper as those of our household! What employment more appropriate *for the domestic circle,* than one which causes the minds of all to move in unison, thus strengthening the ties of mutual affection, and causing us to *associate with home, the remembrance of our intellectual pleasures !* . . . . It will not be easy to preserve *the good old practice* of collecting our families around the cheerful fire, and teaching them to relish early the home-bred delights of affection, and of a commom intercourse with those *best and most improving visiters, good books.*" *Dr. Potter: Advantages of Science*, pp. 27, 29.

9. Re-reading or Reviewing.

"A *frequent review* and careful repetition of the things we would learn, and an abridgment of them in a narrow compass, has a great influence to fix them in the memory. . . . . *Repetition* is so very useful a practice, that Winemon, even from his youth to his old age, never read a book without making some small points, dashes, or hooks in the margin, to mark what parts of the discourse were *proper for review ;* and when he came to the end of a section or chapter, he always shut his book, and recollected all the sentiments or expressions he had marked, so that he could give a tolerable analysis and abstract of every treatise he had read, just after he had finished it. Hence he became so well furnished with a rich variety of knowledge."—*Dr. Watts on the Mind*, p. 177.

"Strive, *by frequent reviews*, to keep your knowledge *always at command.* 'What booteth,' says an old writer, 'to read much, which is a weariness to the flesh; to meditate often, which is a burden to the mind; to learn daily, with increase of knowledge, when he is *to seek* for what he *hath* learned, and perhaps *then*, especially, when he hath most need thereof? Without this, (reviewing) our studies are but lost labor.'"—*Dr. Potter: Handbook for Readers*, p. 20.

"I would recommend, that when we become acquainted with a truly good book, we *read it often.* Cecil tells us that he had a '*shelf for tried books;* books, which he could never open without being incited to reflection, and enriched by some new hint or principle. It should be so with all of us. *A few books properly selected and faithfully read, would* suffice to yield us more, both of pleasure and profit, than any number, however great, taken at random, and read, as they usually are, in a hurried and unreflecting manner. A book, moreover, which deserves the praise of being good, has cost its author efforts which cannot be appreciated at a single reading."—*Dr. Potter: Advantages of Science*, p. 29.

10. READING CONNECTED WITH WRITING.

"For want of retiring and writing, many a learned man has lost several useful meditations of his own, and could never recall them. . . . If a book has no index nor good table of contents, it is very useful to make one as you are reading it. . . . It is sufficient in your index, to take notice only of those parts of the book which are new to you, or which you think well written, and well worthy of your remembrance or review. Shall I be so free as to assure my younger friends, from my own experience, that these methods of reading will cost some pains in the first years of your study, and especially in the first authors, which you peruse in any science, or on any particular subject; but the profit will richly compensate the pains. And in the following years of life, after you have read a few valuable books on any special subject in this manner, it will be very easy to read others of the same kind; because you will not usually find very much new matter in them, which you have not already examined. If the writer be remarkable for any peculiar excellencies or defects in his style or manner of writing, make just observations upon this also; and whatever ornaments you find there, or whatever blemishes occur in the language or manner of the writer, you may make just remarks upon them. And remember, that one book, read over in this manner, with all this laborious meditation, will tend more to enrich your understanding, than skimming over the surface of twenty. . . . . It is useful *to note down matters of doubt and inquiry*, and take the first opportunity to get them resolved either by persons or books. . . . Lawyers and Divines write down short notes or hints of the principal heads of what they desire to commit to memory, in order to preach or plead. . . . The art of *short hand* is of excellent use for this, as well as other purposes. . . . . Those who scarcely ever take a pen in their hands to write short notes or hints of what they are to learn, need a double degree of power to *retain* or recollect what they read or hear."—*Dr. Watts on the Mind*, pp. 42, 64, 65, 72, 178.

"Nor is it merely to the philosopher, who wishes to distinguish himself by his discoveries, that *writing affords an useful instrument of study.* Important assistance may be derived from it by all those who wish to impress on their minds the investigations which occur to them *in the course of their reading.*" —*Dugald Stuart: Philos. of the Mind, Vol.* 1, *p.* 382.

"Seek opportunities to *write and converse* on subjects about which you read. '*Reading*,' says Bacon, 'maketh a *full* man, *conference*, a *ready* man, and *writing*, an *exact* man.'"—*Dr. Potter: Hand Book, &c.*, p. 19.

"I add one more suggestion in the words of another. Young persons especially, will pardon the suggestion, that *in no way*, perhaps, can their store of applicable knowledge be more certainly, though at first almost imperceptibly, increased, than *by habitually reading with a pen in the hand*. There is much good sense in these doggerel verses, for which we are indebted to no ordinary thinker."

"In reading authors, when you find
Bright passages that strike your mind,
And which, perhaps, you may have reason
To think on at another season,
Be not contented with the sight,
But take them down in black and white;
Such a respect is wisely shown,
As makes another's sense one's own.'"

Dr. Potter: Advantages of Science, p. 30.

11. Method of Reading—General Hints and Directions.

"*Books of importance* of any kind, and especially *complete treatises* on any subject, should be *first* read in a *more general* and cursory manner, to learn a little what the treatise promises, and what you may expect from the writer's manner and skill. And for this end, I would advise always, that *the preface be read*, and a survey taken of the *table of contents*, if there be one, *before* this first survey of the book. By this means, you will not only be better fitted to give the book the first reading, but you will be much assisted in your second perusal, *which should be done with greater attention and deliberation;* and you will learn with more ease and readiness what the author pretends to teach. In your reading, mark what is new or unknown to you before; and review those chapters, pages, or paragraphs. . . . . . Other things, also, of the like nature may be usefully practiced with regard to the authors which you read. If *the method of a book be irregular*, reduce it into form by *a little analysis of your own*, or by *hints in the margin;* if those things are *heaped together* which should be separated, you may *wisely distinguish* and divide them. If several things relating to the same subject are *scattered up and down separately* through the treatise, you may bring them all *to one view, by references;* or if the *matter* of a book be really valuable and deserving, you may throw it into a better *method*, reduce it to a more logical scheme, or abridge it into a lesser form. All these practices will have a tendency both to advance your skill in logic and method, to improve your judgment in general, and to give you a fuller survey of that subject in particular. When you have finished the treatise, with all your observations upon it, recollect and determine what real improvements you have made by reading that author. . . . Endeavor to apply every speculative study, as far as possible, to *some practical use, that both yourself and others may be the better for it*."—*Dr. Watts*, pp. 59, 64, 139.

"Always have some useful and pleasant book ready to take up in 'odd ends' of time. A good part of life will otherwise be wasted. 'There is,' says Wyttenbach, 'no business, no avocation whatever, which will not permit a man who has *an inclination* to give a little time every day to the studies of his youth. . . . . Be not alarmed because *so many* books are recommended. They are not all to be read at once, nor in a short time. '*Some travelers*,' says Bishop Hall, '*have more shrunk at the map than at the way;* between both, how many stand still with their arms folded.' . . . . Do not attempt to *read much or fast*. 'To call him *well read*, who reads *many authors*,' says Shaftsbury, 'is improper.' 'It does not matter,' says Seneca, '*how many*, but *how good books* you have.' . . . . . Endeavor to find opportunities to *use your knowledge*, and apply it in practice. 'They proceed right well in all knowledge,' says Bacon, 'which do *couple* study with their practice, and do not first study altogether, and then practice altogether."—*Dr. Potter: Hand Book, &c.*, pp. 16, 20.

"How should we Read? First, thoughtfully and critically; secondly, in company with a friend or with our family; thirdly, repeatedly; fourthly, with pen in hand."—*Dr. Potter: Advantages of Science*, p. 31.

12. Effects of Books—Influence of Authors.

"Wherefore should not the literary character be associated in utility or glory with the other professional classes of society? . . . . . The commercial prosperity of a nation inspires no renovation in mankind; nor will its military power with their affection. There is an interchange of opinions, as well as of spices and specie, which induces nations to esteem each other; and there is a glorious succession of authors, as well as of seamen and soldiers, forever standing before the eyes of the universe. It is by our authors that foreigners have been taught to subdue their own prejudices. . . . . . The small cities of Athens and of Florence will perpetually attest the influence of the literary character over other nations; the one received the tributes of the mistress of the universe, when the Romans sent their youth to be educated at Athens; while the other, at the revival of letters, beheld every polished European crowding to its little court. . . . . . Those who govern a nation, cannot at the same time enlighten them;—authors stand between the governors and the governed. . . . . . The single thought of a man of genius has sometimes changed the dispositions of a people, and even of an age. . . . . . When Locke and Montesquieu appeared, the old systems of government were reviewed; the principles of legislation were developed; and many changes have succeeded, and are still to succeed. . . . . . Observe the influence of authors in forming the character of men, where the solitary man of genius stamps his own on a people. The habits, the precepts, &c., of Dr. Franklin imprinted themselves on his Americans; while the elegant tastes of Sir William Jones could inspire the servants of a commercial corporation to open new and vast sources of knowledge. . . . . . While Britain retains her awful situation among the nations of Europe, the 'Sylva' of Evelyn will endure with her triumphant oaks. In the third edition of that work, the heart of the patriot exults at its results. He tells Charles I. 'how many millions of timber trees, besides requisite others, have been propagated and planted at the *instigation, and by the sole direction of this work.* It was an author in his studious retreat, who, casting a prophetic eye on the age we live in, secured the late victories of our naval sovereignty. Inquire at the Admiralty how the fleets of Nelson have been constructed, and they can tell you that it was with the oaks which the genius of Evelyn planted. . . . . . The same character existed in France, where De Lerres, in 1599, composed a work on the cultivation of mulberry trees, in reference to the art of raising silk-worms. He taught his fellow-citizens to convert a leaf into silk, and silk to become the representative of gold. . . . . . A work in France, under the title of 'L'Ami des Hommes,' first spread there a general passion for agricultural pursuits; and although the national ardor carried all to excess, yet marshes were drained, and waste lands inclosed. . . . The commercial world owes to two retired philosophers, in the solitude of their study, Locke and Smith, those principles which dignify trade into a liberal pursuit, and connect it with the happiness of a people. . . . In the history of genius, there is no chronology, for to us everything it has done is present; and the earliest attempt is connected with the most recent. . . . . . My learned and reflecting friend, (Sharon Turner, Esq.,) whose original researches have enriched our national history, has thus observed on the character of Wickliffe: —'To complete our idea of the importance of Wickliffe, it is only necessary to add, that as his writings made John Huss the Reformer of Bohemia, so the

writings of John Huss led Martin Luther to be the Reformer of Germany; so extensive and so incalculable are the consequences which sometimes follow from human actions.' Our historian has accompanied this, by giving the very feelings of Luther in early life on his first perusal of the works of John Huss; we see the spark of creation caught at the moment; a striking influence of the generation of character! Thus a father-spirit has many sons...... Such are the 'great lights of the world,' by whom the torch of knowledge has been successively seized, and transmitted from one to the other..... The torch of genius is perpetually transferred from hand to hand amidst this fleeting scene."
D'Israeli's Literary Character, &c.; Alexandrian edition, pp. 444, 446.

13. Early Reading—First Studies.

The serious caution and conscientious watchfulness to be exercised by parents and friends, in the selection of books for the young, and for those who have not been accustomed to reading, (on the minds of both which classes, vivid and permanent, and therefore most important impressions will necessarily be produced by the authors recommended.) are forcibly suggested by the illustrations which follow. The practical teachings of these examples make it proper that they should have the place of emphasis and chief effect, at the close of our collations.

"The first studies form an epoch in the history of genius, and unquestionably have sensibly influenced its productions. Often have the first impressions stamped a character on the mind adapted to receive one, as often the first step into life has determined its walk...... An early attachment to the works of Sir Thomas Browne produced in Johnson an excessive admiration of that Latinized English, which violated the native graces of the language. The first studies of Rembrandt affected his after labors; that peculiarity of shadow which marks all his pictures, originated in the circumstance of his father's mill receiving light from an aperture at the top, which habituated that artist afterwards to view all objects as if seen in that magical light. When Pope was a child, he found in his mother's closet a small library of mystical devotion; but it was not suspected till the fact was discovered, that the effusions of love and religion poured forth in his Eloisa, were derived from the seraphic raptures of those erotic mystics, who to the last retained a place in his library among the classical bards of antiquity. The accidental perusal of Quintus Curtius first made Boyle 'in love with other than pedantic books, and conjured up in him,' as he expresses it, 'an unsatisfied appetite of knowledge; so that he thought he owed more to Quintus Curtius than did Alexander.' From the perusal of Rycaut's folio of Turkish history in childhood, the noble and impassioned bard of our times, (Lord Byron,) retained those indelible impressions which gave life and motion to the 'Giaour, the Corsair and Alp.' A voyage to the country produced the scenery..... The influence of first studies, in the formation of the character of genius, is a moral phenomenon, which has not sufficiently attracted our notice. Dr. Franklin acquaints us that when young and wanting books, he accidentally found De Foe's 'Essay on Projects,' from which work impressions were derived which afterwards influenced some of the principal events of his life..... Such is the influence through life of those first unobserved impressions on the character of genius, which every author has not recorded." Such, too, in a greater or less degree, is the influence of first impressions on all minds. As the impressions can never be obliterated, the influence is to last forever.—*See D'Israeli's Literary Character, &c.; Alexandrian edition, p.* 412.

14. Hints to Young Ladies as to What to Read and How to Read.

"Think, my dear young friends, of the difference that is made in the character of a human being, simply by reading. Compare an Irish girl who comes to this country at fifteen or sixteen, who has never been taught to read, with one of your own countrywomen in the humblest condition, of the same age, who *loves to read*, and who has read the books within her reach! ..... Books are the best property of the rich; think what they are to the poor who *really love them*. Compare the pampered boy, who cares for nothing so much as the indulgence of his sensual appetites, fretting over a table spread luxuriously, to a little fellow who, coming from the district-school, with his empty luncheon basket, snatches his Robinson Crusoe from the shelf; and, while his half frozen toes are warming, devours it, forgetful of every evil in life. ..... It was but yesterday that I was at the humble home of a revolutionary soldier—a pensioner. I found his wife reading. Her eight children are dispersed south and west, and the old pair are left alone. They live far away from the village, and hardly put their heads out of doors from November till March. I involuntarily expressed my sympathy in their solitary condition. 'Oh,' replied the old lady most cheerily, 'I have company—*books*, the best of company!' ..... Think over your acquaintance, my young friends; I am sure you will find among them some old person, some invalid, some one cut off from social pleasures, to whom life would be a tedious burden, if it were not for books. .... If there is a real love of books, there is hardly a limit to be set to the knowledge that may be acquired from them without the aid of instructors, schools, or colleges. ... A love for reading is with some merely the keen appetite of a superior mind. It would be felt under any circumstances whatever. But these are the few—the gifted. With most persons, the taste for reading must be cultivated. I believe there is no habit easier to form. Intelligent children, who live in reading families, with very few exceptions, are fond of reading as soon as they can read with facility. .... But, if you have been so unfortunate as not to acquire this habit of reading early, form it now for yourself. If you are not capable of selecting your own books, take the advice of some friend who knows the wants of your mind. Resolve to devote a portion of every day, for a year to come, to reading; and then, if you forget your resolution, it will not signify. The love of reading will, by that time, surely take the place of the duty, and do your mind vastly more good.

"It is difficult to give any general advice as to the selection of books, because so much depends on the character, opportunities, and leisure of the individual. .... It would be too painful for me to believe that there is one among you, to whom it is necessary to say, 'Regard the bible as the first and best of books.' But I fear, my young friends, that you read the bible much less than you should. The multitude of religious books and tracts have, in some measure, superseded it. You are attracted by a story, and, to get a little pure gold you receive a great deal of dross. Many of these books, I know, derive their spirit from the bible; many of them are useful and delightful; but let them take a subordinate place, and not encroach on the time you have to give to the reading of the bible. Do not be satisfied to drink from the stream which is imbued with much earthy material, when you can go to the pure fountain. .... You will find your pleasure in reading the bible incalculably increased, if you will read it not only with a spirit submissive to its Divine instruction, but with your mind awakened, and eager to understand it. There are Dictionaries of the Bible that explain what is obscure; there are books that will give you much light upon the history, customs, and modes of life among the Jews. There are others that explain the prophecies, and show you their fulfillment. ..... If you can read but few books, be sure that the history of your own country is among them. Make yourself acquainted thoroughly with its institutions, its past and present condition, its extent, climate, laws, productions, and commerce. All these subjects come within our own sphere—they may be called domestic matters. Think you, if a woman was well instructed, well *read* on these topics, she would be as incapable of business, and therefore as dependent as she now is? .... Next to the history and condition of your own country, it is important that you acquaint yourselves with the history and condition of the countries whence your ancestors came. Then you will be able to compare your country with other countries, your own times with preceding ages. Thus informed, you will not fall into the common national vanity of fancying all knowledge, all virtue, and all progress, concentrated in the United States; nor into a worse error, a culpable ignorance of the advantages of your own country, and insensibility to them. . . . You will find well written and authentic travels a very improving and delightful kind of reading. You may lack money and opportunity to travel twenty miles from home, when for one or two dollars you may buy a book that will take you, with a well-instructed and all-observing companion, half over the world. Or, if you cannot expend the cost of the book, you may get it from a society, or district-library; or, borrow it from some kindly disposed person. . . . . Good biographies are very improving books. The experience of others will often suggest models, advice, and reproof, that comes in the most inoffensive form. . . . . Every well educated young person who has leisure for reading, should be well versed in English literature. . . . . In the wide department of fictitious writing, let your consciences restrain and direct your inclination, and rectify your taste. . . . . When our Saviour employed fiction in the parables of the prodigal son, and of the good Samaritan, it was, no doubt, to give to an important truth, a form that should be universally interesting and touching. Few will object to your reading such fictitious writings as do good to your hearts; and while you have such as Sir Walter Scott's, and Miss Edgeworth's, you have no excuse for reading the profligate and romantic novels of the last century, or the no less profligate and far more insidious romances of the present day.

"Next to 'what to read,' comes the great question 'how to read,' and I am not sure the last is not the weightier of the two. . . . . No book will improve you which does not make you think; which does not make your own mind work. This is as certain as that the mill is not improved by the corn that passes through it, or that the purse is none the richer for the money that has been in it. . . . . When you read, do not *take for granted*, believing, with ignorant credulity, whatever you see stated in a book. Remember an author is but one witness, and often a very fallible one. Pause in your reading, reflect, compare what the writer tells you with what you have learned from other sources on the subject, and, above all, use your own judgment independently, not presumptuously. . . . . . Knowing how short and precious time is, be more careful in the selection of your books than eager to read a great many. When you do read, read thoroughly and understandingly. . . . . It is a good practice to talk about a book you have just read; not to display your knowledge, for this is pedantry or something worse; but to make your reading a social blessing by communicating liberally to those in your family circle, who may have less time and opportunity for reading than you have. You may often, too, by the superior knowledge of a friend, correct the false impressions you have received. Or, your friend may have read the same book, and then it is a delightful point of sympathy. . . . . One word before I close this subject, as to the preservation of your books. If you love them, you will respect them, and unless you are incorrigibly slovenly and careless, you will not break off the covers, soil the leaves, and dog-ear the corners. . . . . There is a common and offensive habit destructive to books, which we should not presume to caution any *educating* little girl against, if we had not seen it practiced by *educated* men. This is wetting the fingers to turn over the leaves. . . . . Surely this should not be. When you borrow a book, put a cover on it before you read it. Use it with clean hands. Never lay it down on the face, nor where it is exposed to be knocked down by the next passer-by. Do not readily yield to any one's request to lend it again, but return it promptly and punctually Perform the borrower's duty strictly, and Heaven bless you with libera lenders."—*Miss C. M. Sedgwick: Means and Ends.*

PLAN OF READING RECOMMENDED BY THOMAS S. GRIMKE.

1. Before I commenced an author, I made myself thoroughly master of *the whole scheme of his work*, (if a table of contents and chapters enabled me to do so,) of the character of his whole system, of the *principles* on which he had separated and arranged the parts, and of their relation to each other. and to the whole. 2. I then studied the author in the following manner. After reading the first sentence, I meditated on it, developing the author's thought, as well as I was able; and reducing the whole, as nearly as possible, to a single, distinct, concise expression. I then read the second sentence, and did the same: and next compared the two sentences together, meditating on them, and gathering out of them their substance. Thus I went through the paragraph, and then reflected on the whole, until I had reduced it to a single sentence, containing its essence. I then studied the next paragraph in like manner: and having finished it, I compared the two together, and gathered out of them their substance. The same plan was followed in the comparison of sections with sections, chapters with chapters, books with books. until the author was finished. This may appear, at first sight, an exceedingly tedious process; but any one, acquainted with the nature of the mind, knows the wonderful facility that would soon be acquired by a faithful, patient adherence to this mode of study, even through a single chapter. 3. A third rule was to pass nothing unexamined. nothing without reflection. whether in poetry or fiction, history or travels, politics, philosophy, or religion. Gratitude will not allow me to pass unnoticed the vast advantages derived from a humble, patient. thankful perusal of Watts' admirable book on the Improvement of the Mind. Nor ought I to omit the three rules of Professor Whitaker, of Cambridge, given to John Boyse, one of the eminent translators of the Bible in the time of James the 1st, to study chiefly standing or walking, never to study at a window, and not to go to bed, on any account, with cold feet.

It is an error to suppose that a course of study is confined to the period of *youth*, and that when a young man has left school or college, he has finished his education, and has nothing to study but his profession. In truth he has done little more than treasure up some of the important materials, and acquire the elementary habits and discipline, which are indispensable to the continued improvement of his mind. If he expects to be a scholar, not in the *literary* sense of the word, but in a far higher and nobler sense, as a Christian, patriot, philanthropist, and public servant, in the state or national councils. in literary, benevolent, and religious institutions; if he means to be distinguished for his sense of duty, and his spirit of usefulness, for just principles, enlarged views, dignified sentiments and liberal feelings, for sound thinking, and clear, close reasoning, let him be assured that he has done little more than lay the foundations, in the school, or even in the college, up to the age of twenty. He must make up his mind to be a devoted student, in spite of his professional engagements, for ten years at least; until he shall have been able to deepen and strengthen, and enlarge, and elevate his mind, so as to fit himself for solid, honorable, permanent usefulness. Let him remember, that the *school* only prepares the *youth* to enter on the course of study, appropriate to the *young man:* and that the *college* only enables the *young man* to enter on the course of study appropriate to the *man*. Manhood has its appropriate course of study, and the difference between men arises very much from their selection and pursuit of a right course of study. Many fine minds, capable of enlarged and durable improvement and usefulness, are lost every year to the community, in which their lot is cast, to the country they are bound to serve, to the cause of religion, humanity, justice and literature: because they have failed in this great duty, they have neglected the course of study, appropriate to manhood. And here let it be remarked, that the *true* student never considers how much he reads, but rather how *little*, and only *what* and *how* he reads.—*Grimke on Science, Education, and Literature*, p.p. 54–56.

EDUCATION, STUDIES AND CONDUCT.

FOREIGN TRAVEL AS PART OF EDUCATION.

LETTER OF SIR PHILIP SIDNEY TO HIS BROTHER ROBERT, (EARL OF LEICESTER).

THIS letter originally appeared in a little volume entitled "Instructions for Travelers, by Robert Earl of Essex, Sir Philip Sidney and Secretary Davison, 1633." It was written in 1578, probably on the application of his brother Robert, about to set out on his travels, who had been urged by his father, Sir Henry Sidney, at that time Lord Deputy to the Queen for Ireland, "to look to the practice of your most loving brother. Imitate his virtues, exercises, studies and actions. Seek the knowledge of the estate of every prince, court, and city you pass through. Address yourself to the company, to learn this of the elder sort, and yet neglect not the younger. By one you shall gather learning, wisdom, and knowledge; by the other, acquaintance, languages and exercise."

SIR PHILIP SIDNEY, whose act and words on the fatal field of Zutphen, to the poor wounded soldier who, as he was borne by on a litter, cast a longing look on a bottle of wine which the wounded knight was putting to his own lips—"Poor fellow! thy necessity seems greater than mine," and pushed the bottle towards him—has outlived the memory of his 'Defense of Poesy,' or his 'Arcadia,' and all but the traditions of his many personal and intellectual accomplishments, was born November 29, 1554, at Penshurst, and died, as above intimated, from the wound received at Zutphen, October 16, 1586, in the very prime of his days, "the idol of his times—the soldier's, scholar's, courtier's eye, tongue, and word." His dying words to his brother were: 'Love my memory, cherish my friends. But above all, govern your will and affections by the will and word of your Creator, in me beholding the end of this world with all her vanities.' In his own travels, which occupied three years, he devoted himself to the studies, exercises and society for which each city had special opportunities,—at Vienna, to horsemanship; at Padua, to geometry and astronomy, for which the University was then famous; at Frankfort he cultivated the society of Hubert Languet, and at Venice, of Tasso.

MY GOOD BROTHER,

You have thought unkindness in me that I have not written oftener unto you, and have desired I should write unto you something of my opinion touching your travels; you being persuaded my experience thereunto be something, which I must needs confess, but not as you take it; for you think my experience grows from the good things which I have learned; but I know the only experience which I have gotten, is to find how much I might have learned, and how much indeed I have missed, for want of directing my course to the right end, and by the right means. I think you have read Aristotle's Ethics; if you have, you know it is the beginning and foundation of all his works, the end to which every man doth and ought to bend his greatest and smallest actions. I am sure you have imprinted in your mind the scope and mark you mean by your pains to shoot at: for if you should travel but to travel, or to say you had traveled, certainly you should prove a pilgrim to no purpose. But I presume so well of you, that though a great number of us never thought in ourselves why we went, but a certain tickling humor to do as other men had done, you purpose, being a gentleman born, to furnish yourself with the knowledge of such things as may be serviceable for your country and calling; which certainly stands not in the change of air, for the warmest sun makes not a wise man; no, nor in learning languages, although they be of serviceable use, for words are but words in what language soever they be, and much less in that all of us come home full of disguisements, not only of apparel, but of our countenances, as though the credit of a traveler stood all upon his outside; but in the right informing your mind with those things which are most notable in those places which you come unto.

Of which as the one kind is so vain, as I think ere it be long, like the mountebanks in Italy, we travelers shall be made sport of in comedies; so may I justly say, who rightly travels with the eye of Ulysses, doth take one of the most excellent ways of worldly wisdom. For hard sure it is to know England, without you know it by comparing it with some other country, no more than a man can know the swiftness of his horse without seeing him well matched. For you, that are a logician, know, that as greatness of itself is a quantity, so yet the judgment of it, as of mighty riches and all other strengths, stands in the predicament of relation; so that you can not tell what the Queen of England is able to do defensively or offensively, but through knowing what they are able to do with whom she is to be matched. This, therefore, is one notable use of travelers, which stands in the mind and correlative knowledge of things, in which kind comes in the knowledge of all leagues betwixt prince and prince; the topographical description of each country; how the one lies by situation to hurt or help the other; how they are to the sea, well harbored or not; how stored with ships; how with revenue; how with fortification and garrisons; how the people, warlike, trained, or kept under, with many other such considerations, which as they confusedly come into my mind, so I, for want of leisure, hastily set them down; but these things, as I have said, are of the first kind.

The other kind of knowledge is of them which stand in the things which are in themselves either simply good, or simply bad, and so serve for a right instruction or a shunning example. These the poet meant in this verse, "Qui multos hominum mores cognovit et urbes." For he doth not mean by "mores" how to look, or put off one's cap with a new-found grace, although true behavior is not to be despised; marry my heresy is, that the English behavior is best in England, and the Italian's in Italy. But "mores" he takes for that from whence moral philosophy is so called; the certainness of true discerning of men's minds both in virtue, passion and vices. And when he saith, "cognovit urbes," he means not, if I be not deceived, to have seen towns, and marked their buildings; for surely houses are but houses in every place, they do but differ "secundum magis et minus;" but he attends to their religion, politics, laws, bringing up of children, discipline both for war and peace, and such like. These I take to be of the second kind, which are ever worthy to be known for their own sakes. As surely in the great Turk, though we have nothing to do with him, yet his discipline in war matters is worthy to be known and learned.

Nay, even in the kingdom of China, which is almost as far as the Antipodes from us, their good laws and customs are to be learned; but to know their riches and power is of little purpose for us, since that can neither advance nor hinder us. But in our neighbor countries, both these things are to be marked, as well the latter, which contain things for themselves, as the former, which seek to know both those, and how their riches and power may be to us available, or otherwise. The countries fittest for both these, are those you are going into. France is above all other most needful for us to mark, especially in the former kind; next is Spain and the Low Countries; then Germany, which in my opinion excels all others as much in the latter consideration, as the other doth in the former, yet neither are void of neither; for as Germany, methinks, doth excel in good laws, and well administering of justice, so are we likewise to consider in it the many princes with whom we may have league, the places of trade, and means to draw both soldiers and furniture thence in time of need. So on the other side, as in France and Spain, we are principally to mark how they stand towards us both in power and inclination; so are they, not without good and fitting use, even in the generality of wisdom to be known. As in France, the courts of parliament, their subaltern jurisdiction, and their continual keeping of paid soldiers. In Spain, their good and grave proceedings; their keeping so many provinces under them, and by what manner, with the true points of honor; wherein since they have the most open conceit, if they seem over curious, it is an easy matter to cut off when a man sees the bottom. Flanders likewise, besides the neighborhood with us, and the annexed considerations thereunto, hath divers things to be learned, especially their governing their merchants and other trades. Also for Italy, we know not what we have, or can have, to do with them, but to buy their silks and wines; and as for the other point, except Venice, whose good laws and customs we can hardly proportion to ourselves, because they are quite of a contrary government; there is little there but tyrannous oppression, and servile yielding to them that have little or no right over them. And for the men you shall have there, although indeed some be excellently learned, yet are they all given to counterfeit learning, as a man shall learn among them more false grounds of things than in any place else that I know; for, from a tapster upwards, they are all discoursers in certain matters and qualities, as horsemanship, weapons, painting, and such are better there than in other countries; but for other matters, as well, if not better, you shall have them in nearer places.

Now resteth in my memory but this point, which indeed is the chief to you of all others; which is the choice of what men you are to direct yourself to; for it is certain no vessel can leave a worse taste in the liquor it contains, than a wrong teacher infects an unskillful hearer with that which hardly will ever out: I will not tell you some absurdities I have heard travelers tell; taste him well before you drink much of his doctrine. And when you have heard it, try well what you have heard, before you hold it for a principle; for one error is the mother of a thousand. But you may say, how shall I get excellent men to take pains to speak with me? truly in few words, either by much expense or much humbleness.

Your most loving Brother,

PHILIP SIDNEY.

LORD BACON. ESSAY.—OF TRAVEL.

Travel, in the younger sort, is a part of education; in the elder, a part of experience. He that traveleth into a country, before he hath some entrance into the language, goeth to school and not to travel. That young men travel under some tutor, or grave servant, I allow (*approve*) well; so that he be such a one that hath the language, and hath been in the country before; whereby he may be able to tell them what things are worthy to be seen in the country where they go, what acquaintances they are to seek, what exercises or discipline the place yieldeth; for else young men shall go hooded, and look abroad little. It is a strange thing that, in sea voyages, where there is nothing to be seen but sky and sea, men should make diaries; but in land travel, wherein so much is to be observed, for the most part they omit it; as if chance were fitter to be registered than observation: let diaries, therefore, be brought in use. The things to be seen and observed are the courts of princes, especially when they give audience to ambassadors; the courts of justice, while they sit and hear causes; and so of consistories ecclesiastic; the churches and monasteries, with the monuments that are therein extant; the walls and fortifications of cities and towns; and so the havens and harbors, antiquities and ruins, libraries, colleges, disputations, and lectures, where any are; shipping and navies; houses and gardens of state and pleasure, near great cities; armories, arsenals, magazines, exchanges, burses, warehouses, exercises of horsemanship, fencing, training of soldiers, and the like: comedies, such whereunto the better sort of persons do resort; treasuries of jewels and robes; cabinets and rarities; and, to conclude, whatsoever is memorable in the places where they go; after all which the tutors or servants ought to make diligent inquiry. As for triumphs, masks, feasts, weddings, funerals, capital executions, and such shows, men need not to be put in mind of them: yet they are not to be neglected. If you will have a young man to put his travel into a little room, and in short time to gather much, this you must do: first, as was said, he must have some entrance into the language before he goeth; then he must have such a servant, or tutor, as knoweth the country, as was likewise said: let him carry with him also some card, or book, describing the country where he traveleth, which will be a good key to his inquiry; let him keep also a diary; let him not stay long in one city or town, more or less as the place deserveth, but not long; nay, when he stayeth in one city or town, let him change his lodging from one end and part of the town to another, which is a great adamant (*loadstone*) of acquaintance; let him sequester himself from the company of his countrymen, and diet in such places where there is good company of the nation where he traveleth: let him, upon his removes from one place to another, procure recommendation to some person of quality residing in the place whither he removeth, that he may use his favor in those things he desireth to see or know: thus he may abridge his travel with much profit. As for the acquaintance which is to be sought in travel, that which is most of all profitable is acquaintance with the secretaries and employed men of ambassadors: for so in traveling in one country, he shall suck the experience of many: let him also see and visit eminent persons in all kinds, which are of great name abroad, that he may be able to tell how the life agreeth with the fame. For quarrels, they are with care and discretion to be avoided; they are commonly for mistresses, healths, place, and words: and let a man beware how he keepeth company with choleric and quarrelsome persons, for they will engage him in their own quarrels. When a traveler returneth home, let him not leave the countries where he hath traveled altogether behind him; but maintain a correspondence by letters with those of his acquaintance which are of most worth; and let his travel appear rather in his discourse than in his apparel or gesture; and in his discourse let him be rather advised in his answers than forward to tell stories: and let it appear that he doth not change his country manners for those of foreign parts; but only prick in some flowers of that which he hath learned abroad into the customs of his own country.

SHAKSPEARE—POLONIUS TO HIS SON LOTHARIO.

There, my blessing with you:
And these few precepts in thy memory
Look thou character:—
Give thy thoughts no tongue,
Nor any unproportioned thought his act.
Be thou familiar, but by no means vulgar:
The friends thou hast, and their adoption tried,
Grapple them to thy soul with hooks of steel;
But do not dull thy palm with entertainment
Of each new-hatched unfledgéd comrade. Beware
Of entrance to a quarrel; but, being in,
Bear 't, that th' opposer may beware of thee.
Give every man thine ear, but few thy voice;
Take each man's censure, but reserve thy judgment.
Costly thy habit as thy purse can buy,

But not express'd in fancy; rich, not gaudy:
For the apparel oft proclaims the man;
And they in France, of the best rank and station,
Are most select and generous, chief in that,
Neither a borrower, nor a lender be;
For loan oft loses both itself and friend,
And borrowing dulls the edge of husbandry.
This above all,—to thine ownself be true;
And it must follow, as the night the day,
Thou canst not then be false to any man.—*Hamlet.*

JOHN MILTON.

Milton, having improved every facility of culture at home and school, and tested the value of foreign travel in his own experience, but entering on it only when his own mind was well disciplined, and furnished with a knowledge of the government, history, language and literature of the countries which he proposed to visit, and furnished too with letters from scholars and statesmen which introduced him to men eminent in science and public administration—thus educated and equipped, Milton, in his 'plan of a complete and virtuous education to fit the ingenuous youth of England for the exigencies of private and public life, in peace or war,' thus speaks of the advantages of travel:

Besides these constant exercises at home, there is another opportunity of gaining experience to be won from pleasure itself abroad; in these vernal seasons of the year, when the air is calm and pleasant, it were an injury and sullenness against nature not to go out and see her riches, and partake of her rejoicing with heaven and earth. I should not, therefore, be a persuader to them of studying much then, after two or three years that they have well laid their grounds, but to ride out in companies, with prudent and staid guides, to all quarters of the land, learning and observing all places of strength, all commodities of building, and of soil for towns and tillage, harbors and ports for trade. Sometimes taking sea as far as to our navy, to learn there also what they can in the practical knowledge of sailing and sea-fight. These ways would try all the peculiar gifts of nature, and if there were any secret excellences, would fetch it out and give it fair opportunities to advance itself by, which could not but mightily redound to the good of this nation, and bring into fashion again those old admired virtues and excellences with far more advantage now in this purity of Christian knowledge. If they desire to see other countries at three or four-and-twenty years of age, not to learn principles, but to enlarge experience and make wise observation, they will by that time be such as shall deserve the regard and honor of all men where they pass, and the society and friendship of those, in all places, who are best and most eminent.

LORD LITTLETON.

Me other cares in other climes engage—
In various knowledge to improve my youth,
And conquer prejudice, worst foe to Truth;
By foreign arts, domestic faults to mend,
Enlarge my notions and my views extend;
The useful science of the world to know,
Which books can never teach, or pedants show.

LORD HARDWICKE.

I WISH, sir, you would make people understand that *travel* is really the last step to be taken in the instruction of youth: and that to set out with it, is to begin where they should end. Certainly the true end of visiting foreign parts is to look into their customs and policies, and observe in what particulars they excel or come short of our own; to unlearn some odd peculiarities in our manners, and wear off such awkward stiffnesses and affectations in our behavior, as may possibly have been contracted from constantly associating with one nation of men, by a more free, general, and mixed conversation. But how can any of these advantages be attained by one who is a mere stranger to the custom and policies of his native country, and has not yet fixed in his mind the first principles of manners and behavior? To endeavor it, is to build a gaudy structure without any foundation; or, if I may be allowed the expression, to work a rich embroidery upon a cobweb.

Another end of traveling, which deserves to be considered, is the improving our taste for the best authors of antiquity, by seeing the places where they lived, and of which they wrote; to compare the natural face of the country with the description they have given us, and observe how well the picture agrees with the original. This must certainly be a most charming exercise to the mind that is rightly turned for it; besides that it may in a good measure be made subservient to morality, if the person is capable of drawing just conclusions concerning the uncertainty of human things, from the ruinous alterations time and barbarity have brought upon so many places, cities, and whole countries, which make the most illustrious figures in history. And this hint may be not a little improved by examining every spot of ground that we find celebrated as the scene of some famous action, or retaining any footsteps of a Cato, Cicero, or Brutus, or some such great virtuous men. A nearer view of any such particular, though really little and trifling in itself, may serve the more powerfully to warm a generous mind to an emulation of their virtues, and a great ardency of ambition to imitate their bright examples, if it comes duly tempered and prepared for the impression. But this I believe you will hardly think those to be, who are so far from entering into the sense and spirit of the ancients, that they do not yet understand their language with any exactness.

PHILIP YORKE (afterwards Earl of Hardwicke), in Spectator 364.

MACAULAY.—ON DR. JOHNSON'S ESTIMATE OF TRAVEL AND HISTORY.

IT is remarkable that to the last he [Dr. Johnson] entertained a fixed contempt for all those modes of life and those studies which tend to emancipate the mind from the prejudices of a particular age or particular nation. Of foreign travel and of history he spoke with the fierce and boisterous contempt of ignorance. "What does a man learn by traveling? Is Beauclerk the better for traveling? What did Lord Charlemont learn in his travels, except that there was a snake in one of the pyramids of Egypt?" History was, in his opinion, to use the fine expression of Lord Plunket, 'an old almanac.' Historians could, as he conceived, claim no higher dignity than that of almanac-makers; and his favorite historians were those who, like Lord Hailes, aspired to no higher dignity. He always spoke with contempt of Robertson. Hume he would not even read. He affronted one of his friends for talking to him about Cataline's conspiracy, and declared that he never desired to hear of the Punic war again as long as he lived.

Assuredly one fact which does not directly affect our own interest, considered in itself, is no better worth knowing than another fact. The fact that there is a snake in a pyramid, or the fact that Hanibal crossed the Alps, are in themselves as unprofitable to us as the fact that there is a green blind in a particular house in Threadneedle Street, or the fact that a Mr. Smith comes into the city every morning on the top of one of the Blackwall stages. But it is certain that those who will not crack the shell of history, will never get at the kernel. Johnson, with hasty arrogance, pronounced the kernel worthless because he saw no value in the shell. The real use of traveling to distant countries and of studying the annals of past times, is to preserve men from the contraction of mind which those can hardly escape whose whole communion is with one generation and one neighborhood, who arrive at conclusions by means of an induction not sufficiently copious, and who therefore constantly confound exceptions with rules, and accidents with essential properties. In short, the real use of traveling and of studying history is to keep men from being what Tom Dawson was in fiction, and Samuel Johnson in reality.

DR. AIKIN.—HOW TO OBSERVE.

JOHN AIKIN, M. D., was born in Kibworth, in Lancashire, in 1747, educated at Warrington and Edinburgh, and took his medical degree at Leyden in 1784. He was for a time principal of a dissenting academy at Warrington, but pursued his medical practice at Yarmouth and Stoke Newington, London. He commenced his literary career by publishing, in connection with his sister, (Mrs. Anna Letitia Barbauld) Evenings at Home, in which the following illustration of the too common practice of travelers, old and young, first appeared:

EYES AND NOT EYES; OR THE ART OF SEEING.

Conversation between a Tutor and his two pupils, Robert and William.

Tutor. Well, Robert, where have you been walking this afternoon? (said a Tutor to one of his pupils at the close of a holyday.)

Robert. I have been to Broom-heath, and so round by the windmill upon Camp-mount, and home through the meadows by the river side.

T. Well, that is a pleasant round.

R. I thought it very dull, sir; I scarcely met with a single person. I would much rather have gone along the turnpike-road.

T. Why, if seeing men and horses is your object, you would, indeed, be better entertained on the high-road. But did you see William?

R. We set out together, but he lagged behind in the lane, so I walked on and left him.

T. That was a pity. He would have been company for you.

R. O, he is so tedious, always stopping to look at this thing and that! I would rather walk alone. I dare say he is not got home yet.

T. Here he comes. Well, William, where have you been?

William. O, the pleasantest walk! I went all over Broom-heath, and so up to the mill at the top of the hill, and then down among the green meadows by the side of the river.

T. Why, that is just the round Robert has been taking, and he complains of its dullness, and prefers the high-road.

W. I wonder at that. I am sure I hardly took a step that did not delight me; and I have brought home my handkerchief full of curiosities.

T. Suppose, then, you give us an account of what amused you so much. I fancy it will be as new to Robert as to me.

W. I will do it readily. The lane leading to the heath, you know, is close and sandy, so I did not mind it much, but made the best of my way. However, I spied a curious thing enough in the hedge. It was an old crabtree, out of which grew a great bunch of something green, quite different from the tree itself. Here is a branch of it.

T. Ah! this is mistletoe, a plant of great fame for the use made of it by the Druids of old, in their religious rites and incantations. It bears a very slimy white berry, of which birdlime may be made, whence the Latin name *viscus*. It is one of those plants which do not grow in the ground by a root of their own, but fix themselves upon other plants; whence they have been humorously styled *parasitical*, as being hangers on, or dependents. It was the mistletoe of the oak that the Druids particularly honored.

W. A little further on I saw a green woodpecker fly to a tree, and run up the trunk like a cat.

T. That was to seek for insects in the bark, on which they live. They bore holes with their strong bills for that purpose, and do much damage to the trees by it.

W. What beautiful birds they are!

T. Yes; they have been called, from their color and size, the English parrot.

W. When I got upon the open heath, how charming it was! The air seemed so fresh, and the prospect on every side so free and unbounded! Then it was all covered with gay flowers, many of which I had never observed before. There were at least three kinds of heath, (I have got them in my handkerchief here,) and gorse, and broom, and bellflower, and many others of all colors, of which I will beg you presently to tell me the names.

T. That I will, readily.

W. I saw, too, several birds that were new to me. There was a pretty grayish one, of the size of a lark, that was hopping about some great stones; and when he flew, he showed a great deal of white above his tail.

T. That was a wheat-ear. They are reckoned very delicious birds to eat, and frequent the open downs in Sussex, and some other counties, in great numbers.

W. There was a flock of lapwings upon a marshy part of the heath, that amused me much. As I came near them, some of them kept flying round and round just over my head, and crying *pewit* so distinctly, one might almost fancy they spoke. I thought I should have caught one of them, for he flew as if one of his wings was broken, and often tumbled close to the ground; but as I came near, he always contrived to get away.

T. Ha, ha! you were finely taken in, then! This was all an artifice of the bird's, to entice you away from its nest: for they build upon the bare ground, and their nest would easily be observed, did not they draw off the attention of intruders, by their loud cries and counterfeit lameness.

W. I wish I had known that, for he led me a long chase, often over shoes in water. However, it was the cause of my falling in with an old man and a boy, who were cutting and piling up turf for fuel; and I had a good deal of talk with them, about the manner of preparing the turf, and the price it sells at. They gave me, too, a creature I never saw before—a young viper, which they had just killed, together with its dam. I have seen several common snakes, but this is thicker in proportion, and of a darker color than they are.

T. True. Vipers frequent those turfy boggy grounds pretty much, and I have known several turf-cutters bitten by them.

W. They are very venomous, are they not?

T. Enough so to make their wounds painful and dangerous, though they seldom prove fatal.

W. Well—I then took my course up to the windmill on the mount. I climbed up the steps of the mill in order to get a better view of the country round. What an extensive prospect! I counted fifteen church steeples; and I saw several gentlemen's houses peeping out from the midst of green woods and plantations; and I could trace the windings of the river all along the low grounds, till it was lost behind a ridge of hills. But I'll tell you what I mean to do, if you will give me leave.

T. What is that?

W. I will go again, and take with me Carey's county map, by which I shall probably be able to make out most of the places.

T. You shall have it, and I will go with you, and take my pocket spying-glass.

W. I shall be very glad of that. Well—a thought struck me, that as the hill is called *Camp-mount*, there might probably be some remains of ditches and mounds, with which I have read that camps were surrounded. And I really believe I discovered something of that sort running round one side of the mount.

T. Very likely you might. I know antiquaries have described such remains as existing there, which some suppose to be Roman, others Danish. We will examine them further when we go.

W. From the hill I went straight down to the meadows below, and walked on the side of a brook that runs into the river. It was all bordered with reeds, and flags, and tall flowering plants, quite different from those I had seen on the heath. As I was getting down the bank to reach one of them, I heard something plunge into the water near me. It was a large water-rat, and I saw it swim over to the other side, and go into its hole. There were a great many large dragon flies all about the stream. I caught one of the finest, and have got him here in a leaf. But how I longed to catch a bird that I saw hovering over the water, and every now and then darting down into it! It was all over a mixture of the most beautiful green and blue, with some orange color. It was somewhat less than a thrush, and had a large head and bill, and a short tail.

T. I can tell you what that bird was—a kingfisher, the celebrated halcyon of the ancients, about which so many tales are told. It lives on fish, which it catches in the manner you saw. It builds in holes in the banks; and is a shy, retired bird, never to be seen far from the stream where it inhabits.

W. I must try to get another sight of him, for I never saw a bird that pleased me so much. Well, I followed this little brook till it entered the river, and then took the path that runs along the bank. On the opposite side I observed several little birds running along the shore, and making a piping noise. They were brown and white, and about as big as a snipe.

T. I suppose they were sand-pipers, one of the numerous family of birds that get their living by wading among the shallows, and picking up worms and insects.

W. There were a great many swallows, too, sporting upon the surface of the water, that entertained me with their motions. Sometimes they dashed into the stream; sometimes they pursued one another so quickly, that the eye could scarcely follow them. In one place, where a high steep sand-bank rose directly above the river, I observed many of them go in and out of holes, with which the bank was bored full.

T. Those were sand-martins, the smallest of our four species of swallows. They are of a mouse-color above, and white beneath. They make their nests, and bring up their young in these holes, which run a great depth, and by their situation are secure from all plunderers.

W. A little further I saw a man in a boat, who was catching eels in an odd way. He had a long pole, with broad iron prongs at the end, just like Neptune's trident, only there were five instead of three. This he pushed straight down into the mud, in the deepest parts of the river, and fetched up the eels sticking between the prongs.

T. I have seen this method. It is called, spearing of eels.

W. While I was looking at him, a heron came flying over my head, with his large flagging wings. He alighted at the next turn of the river, and I crept softly behind the bank to watch his motions. He had waded into the water as far as his long legs would carry him, and was standing with his neck drawn in, looking intently on the stream. Presently he darted his long bill as quick as lightning into the water, and drew out a fish, which he swallowed. I saw him catch another in the same manner. He then took alarm at some noise I made, and flew away slowly to a wood at some distance, where he settled.

T. Probably his nest was there, for herons build upon the loftiest tree they can find, and sometimes in society together, like rooks. Formerly, when these birds were valued for the amusement of hawking, many gentlemen had their *heronries*, and a few are still remaining.

W. I think they are the largest wild birds we have.

T. They are of great length and spread of wing, but their bodies are comparatively small.

W. I then turned homewards across the meadows, where I stopped awhile to look at a large flock of starlings, which kept flying about at no great distance. I could not tell at first what to make of them; for they rose altogether from the ground as thick as a swarm of bees, and formed themselves into a kind of black cloud hovering over the field. After taking a short round they settled again, and presently rose again in the same manner. I dare say there were hundreds of them.

T. Perhaps so; for in the fenny countries their flocks are so numerous as to break down whole acres of reeds, by settling on them. This disposition of starlings to fly in close swarms, was remarked even by Homer, who compares the foe flying from one of his heroes, to a *cloud* of starlings retiring dismayed at the approach of the hawk.

W. After I had left the meadows, I crossed the cornfields in the way to our house, and passed close by a deep marl pit. Looking into it, I saw, on one of the sides, a cluster of what I took to be shells; and upon going down, I picked up a clod of marl, which was quite full of them; but how sea shells could get there, I can not imagine.

T. I do not wonder at your surprise, since many philosophers have been much perplexed to account for the same appearance. It is not uncommon to find great quantities of shells and relics of marine animals, even in the bowels of high mountains, very remote from the sea.

W. I got to the high field next to our house just as the sun was setting, and I stood looking at it till it was quite lost. What a glorious sight! The clouds were tinged with purple and crimson, and yellow of all shades and hues, and the clear sky varied from blue to a fine green at the horizon. But how large the sun appears just as it sets! I think it seems twice as big as when it is over head.

T. It does so; and you may probably have observed the same apparent enlargement of the moon at its rising.

W. I have; but pray what is the reason of this?

T. It is an optical deception, depending upon principles which I can not well explain to you, till you know more of that branch of science. But what a number of new ideas this afternoon's walk has afforded you? I do not wonder that you found it amusing: it has been very instructive, too. Did *you* see nothing of all these sights, *Robert?*

R. I saw some of them, but I did not take particular notice of them.

T. Why not?

R. I do not know. I did not care about them; and I made the best of my way home.

T. That would have been right, if you had been sent on a message; but as you only walked for amusement, it would have been wiser to have sought out as many sources of it as possible. But so it is—one man walks through the world with his eyes open, and another with them shut; and upon this difference depends all the superiority of knowledge the one acquires above the other. I have known sailors who had been in all the quarters of the world, and could tell you nothing but the signs of the tippling-houses they frequented in different ports, and the price and quality of the liquor. On the other hand, a Franklin could not cross the channel without making some observations useful to mankind. While many a vacant, thoughtless youth is whirled throughout Europe without gaining a single idea worth crossing a street for, the observing eye and inquiring mind find matter of improvement and delight in every ramble in town and country. Do *you* then, *William*, continue to make use of your eyes; and *you*, *Robert*, learn that eyes were given you to use.

STUDIES AND CONDUCT.

MANNERS, OR GOOD BEHAVIOR.

MANNERS, Behavior or Good Breeding, holds an important place in every scheme of liberal culture. It has been variously defined or rather described—by Swift 'as the art of making those people easy with whom we converse;' by Chesterfield 'as the result of much good sense, some good nature, and a little self-denial for the sake of others, and with a view to obtain the same indulgence from them,' and again as that 'without which the scholar is a pedant, the philosopher a cynic, the soldier a brute, and every man disagreeable;' by Ralph Waldo Emerson 'as the silent and subtle language of the figure, movement and gesture, and the whole action of the human machine;' by Landor 'as a power, which takes away the weight and galling from any other power we may exercise, and the want of which always leaves room for a suspicion of folly;' by Steele 'as supplying the small change for ordinary traffic, even if the coffers are filled with gold;' by Lord Chatham, as 'benevolence in trifles, or the preference of others to ourselves in the little daily, hourly occurrences in the commerce of life. The habitual attention to the little wants of those we are with, by which we prevent or remove them.' It is in brief the application of the Christian Rule 'of doing unto others as we would have others do unto us,' in the small as well as the great matters of life.

Good sense, a sincere desire to please, quick observation and analysis of the subtle influences which go out from the presence, speech and movements of a well-bred person, and the frequenting the society of men and women, to whom good manners is an unconscious habit—are the best school and teachers of this branch of social training.

We propose to bring together suggestions which have received the stamp of success, for the cultivation of this social virtue and grace of character—not the chief end of man here below, but the Corinthian capital of the solid fabric of a consummate education.

JONATHAN SWIFT, D.D.

THE following suggestions constitute "*The treatise on Good Manners and Good Breeding*," which was published soon after the Dean's death, and are substantially the same as printed in No. 20 of the Tatler, issued March 6, 1710–11. They have been very much praised as "containing the substance of all the doctrine on this subject."

GOOD MANNERS.

Good manners is the art of making those people easy with whom we converse.

Whoever makes the fewest persons uneasy is the best bred in the company.

As the best law is founded upon reason, so are the best manners. And as some lawyers have introduced unreasonable things into common law, so likewise many teachers have introduced absurd things into common good manners.

One principal point of this art is, to suit our behavior to the three several degrees of men; our superiors, our equals, and those below us.

For instance, to press either of the two former to eat or drink is a breach of manners; but a tradesman or a farmer must be thus treated, or else it will be difficult to persuade them that they are welcome.

Pride, ill-nature, and want of sense, are the three great sources of ill-manners: without some one of these defects, no man will behave himself ill for want of experience, or of what, in the language of fools, is called knowing the world.

I defy any one to assign an incident wherein reason will not direct us what to say or do in company, if we are not misled by pride or ill-nature.

Therefore I insist that good sense is the principal foundation of good manners; but because the former is a gift which very few among mankind are possessed of, therefore all the civilized nations of the world have agreed upon fixing some rules upon common behavior best suited to their general customs or fancies, as a kind of artificial good sense, to supply the defects of reason. Without which the gentlemanly part of dunces would be perpetually at cuffs, as they seldom fail when they happen to be drunk, or engaged in squabbles about women or play. And, God be thanked, there hardly happens a duel in a year, which may not be imputed to one of these three motives. Upon which account, I should be exceedingly sorry to find the legislature make any new laws against the practice of duelling; because the methods are easy and many for a wise man to avoid a quarrel with honor, or engage in it with innocence. And I can discover no political evil in suffering bullies, sharpers, and rakes, to rid the world of each other by a method of their own, where the law has not been able to find an expedient.

As the common forms of good manners were intended for regulating the conduct of those who have weak understandings; so they have been corrupted by the persons for whose use they were contrived. For these people have fallen into a needless and endless way of multiplying ceremonies, which have been extremely troublesome to those who practice them, and insupportable to everybody else: insomuch that wise men are often more uneasy at the over-civility of these refiners than they could possibly be in the conversation of peasants or mechanics.

The impertinencies of this ceremonial behavior are nowhere better seen than at those tables where the ladies preside, who value themselves upon account of their good-breeding; where a man must reckon upon passing an hour without doing any one thing he has a mind to; unless he will be so hardy as to break through all the settled decorum of the family. She determines what he loves best, and how much he shall eat; and if the master of the house happens to be of the same disposition, he proceeds in the same tyrannical manner to prescribe in the drinking part: at the same time you are under the necessity of answering a thousand apologies for your entertainment. And although a good deal of this humor is pretty well worn off among many people of the best fashion, yet too much of it still remains, especially in the country; where an honest gentleman assured me, that having been kept four days against his will at a friend's house, with all the circumstances of hiding his boots, locking up the stable, and other contrivances of the like nature, he could not remember, from the moment he came into the house to the moment he left it, any one thing wherein his inclination was not directly contradicted; as if the whole family had entered into a combination to torment him.

But, beside all this, it would be endless to recount the many foolish and ridiculous accidents I have observed among these unfortunate proselytes to ceremony. I have seen a duchess fairly knocked down, by the precipitancy of an officious coxcomb running to save her the trouble of opening a door. I remember, upon a birthday at court, a great lady was rendered utterly disconsolate by a dish of sauce let fall by a page directly upon her head-dress and brocade, while she gave a sudden turn to her elbow upon some point of ceremony with the person who sat next to her. Monsieur Buys, the Dutch envoy, whose politics and manners were much of a size, brought a son with him, about thirteen years old, to a great table at court. The boy and his father, whatever they put on their plates, they first offered round in order, to every person in company; so that we could not get a minute's quiet during the whole dinner. At last their two plates happened to encounter, and with so much violence, that, being china, they broke in twenty pieces, and stained half the company with wet sweetmeats and cream.

There is a pedantry in manners, as in all arts and sciences; and sometimes in trades. Pedantry is properly the over-rating of any kind of knowledge we pretend to. And if that kind of knowledge be a trifle in itself, the pedantry is the greater. For which reason I look upon fiddlers, dancing-masters, heralds, masters of the ceremony, &c., to be greater pedants than Lipsius, or the elder Scaliger. With this kind of pedants, the court, while I knew it, was always plentifully stocked; I mean from the gentleman usher (at least) inclusive, downward to the gentleman porter: who are, generally speaking, the most insignificant race of people that this island can afford, and with the smallest tincture of good manners; which is the only trade they profess. For, being wholly illiterate, and conversing chiefly with each other, they reduce the whole system of breeding within the forms and circles of their several offices: and, as they are below the notice of ministers, they live and die in court under all revolutions, with great obsequiousness to those who are in any degree of credit or favor, and with rudeness and insolence to everybody else. Whence I have long concluded, that good manners are not a plant of the court growth: for if they were, those people, who have understandings directly of a level for such acquirements, who have served such long apprenticeships to nothing else, would certainly have picked them up. For, as to the great officers, who attend the prince's person or councils, or preside in his family, they are a transient body, who have no better a title to good manners than their neighbors, nor will probably have recourse to gentlemen ushers for instruction. So that I know little to be learned at court upon this head, except in the material circumstance of dress; wherein the authority of the maids of honor must indeed be allowed to be almost equal to that of a favorite actress.

I make a difference between good manners and good breeding;

although, in order to vary my expression, I am sometimes forced to confound them. By the first, I only understand the art of remembering and applying certain settled forms of general behavior. But good-breeding is of a much larger extent; for, beside an uncommon degree of literature sufficient to qualify a gentleman for reading a play or a political pamphlet, it takes in a great compass of knowledge; no less than that of dancing, fighting, gaming, making the circle of Italy, riding the great horse, and speaking French; not to mention some other secondary or subaltern accomplishments, which are more easily acquired. So that the difference between good breeding and good manners lies in this, that the former can not be attained to by the best understandings without study and labor; whereas a tolerable degree of reason will instruct us in every part of good manners, without other assistance.

I can think of nothing more useful upon this subject than to point out some particulars, wherein the very essentials of good manners are concerned, the neglect or perverting of which does very much disturb the good commerce of the world, by introducing a traffic of mutual uneasiness in most companies.

First, A necessary part of good manners is a punctual observance of time at our own dwellings, or those of others, or at third places; whether upon matter of civility, business, or diversion; which rule, though it be a plain dictate of common reason, yet the greatest minister I ever knew was the greatest trespasser against it; by which all his business doubled upon him, and placed him in a continual arrear. Upon which I often used to rally him, as deficient in point of good manners. I have known more than one ambassador and secretary of state, with a very moderate portion of intellectuals, execute their offices with good success and applause, by the mere force of exactness and regularity. If you duly observe time for the service of another, it doubles the obligation; if upon your own account, it would be manifest folly, as well as ingratitude, to neglect it; if both are concerned, to make your equal or inferior attend on you to his own disadvantage is pride and injustice

Ignorance of forms can not properly be styled ill manners, because forms are subject to frequent changes; and consequently, being not founded upon reason, are beneath a wise man's regard. Besides, they vary in every country; and after a short period of time, very frequently in the same; so that a man who travels must needs be at first a stranger to them in every court through which he passes; and, perhaps, at his return, as much a stranger in his own; and after all, they are easier to be remembered or forgotten than faces or names.

Indeed, among the many impertinencies that superficial young men bring with them from abroad, this bigotry of forms is one of the principal, and more predominant than the rest; who look upon them not only as if they were matters capable of admitting of choice, but even as points of importance; and are therefore zealous on all occasions to introduce and propagate the new forms and fashions they have brought back with them; so that, usually speaking, the worst bred person in company is a young traveler just returned from abroad.

Hints on Good Manners, by Swift.

Good manners is the art of making every reasonable person in the company easy, and to be easy ourselves.

What passes for good manners in the world generally produces quite contrary effects.

Many persons, of both sexes, whom I have known, and who passed for well-bred in their own and the world's opinion, are the most troublesome in company to others and themselves.

Nothing is so great an instance of ill-manners as flattery. If you flatter all the company, you please none: if you flatter only one or two, you affront the rest.

Flattery is the worst and falsest way of showing our esteem.

Argument, as usually managed, is the worst sort of conversation; as it is generally in books the worst sort of reading.

Good conversation is not to be expected in much company, because few listen, and there is continual interruption. But good or ill manners are discovered, let the company be ever so large.

Perpetual aiming at wit a very bad part of conversation. It is done to support a character; it generally fails: it is a sort of insult on the company, and a constraint upon the speaker.

For a man to talk in his own trade, or business, or faculty, is a great breach of good manners. Divines, physicians, lawyers, soldiers, particularly poets, are frequently guilty of this weakness.

Courts are the worst of all schools to teach good manners.

A courtly bow, or gait, or dress, are no part of good manners; and therefore every man of good understanding is capable of being well-bred upon any occasion.

To speak in such a manner as may possibly offend any reasonable person in company, is the highest instance of ill manners. Good manners chiefly consist in action, not in words. Modesty and humility the chief ingredients.

THE WELL ORDERING OF LIFE.

MONEY—ITS ACQUISITION AND MANAGEMENT.

INTRODUCTION.

There is no one subject on which the young—of either sex, and in all conditions and professions, and especially those who aim at high scholarship and culture, and desire to live with character, independence, and power—need to form clear conceptions and practical aims, than on money—its acquisition, utilities, and management. In this country, the art of acquisition is pretty well understood; for which we are indebted, mainly, to the necessities of a poor but intelligent ancestry, and the possession of rich but undeveloped material and facilities, but in no small degree to the maxims of POOR RICHARD, which, by household and school-book repetition, have become inwrought into the texture of every American mind. But with increased prosperity, we have enough of prodigal spending, as well as munificent giving; but there is a sad sacrifice of health, intellect, and conscience in the pursuit of wealth, and still larger waste of happiness, utilities, and power in its management and final disposition. On all of these points, our English literature is rich with APPLES OF GOLD—*the words of the wise.*

DR. FRANKLIN AS POOR RICHARD.

THE WAY TO WEALTH.

The sayings in the following paper were first published by Benjamin Franklin (born at Boston, in 1706, and died at Philadelphia, in 1790) in successive issues of an almanac entitled "Poor Richard," and subsequently printed under the name of The Way to Wealth:

COURTEOUS READER,

I have heard that nothing gives an author so great pleasure as to find his works respectfully quoted by others. Judge, then, how much I must have been gratified by an incident I am going to relate to you. I stopped my horse lately, where a great number of people were collected at an auction of merchants' goods. The hour of the sale not being come, they were conversing on the badness of the times; and one of the company called to a plain, clean old man, with white locks, "Pray, father Abraham, what think you of the times? Will not these heavy taxes quite ruin the country? how shall we be ever able to pay them? What

would you advise us to?" Father Abraham stood up, and replied, "If you would have my advice, I will give it you in short; 'for a word to the wise is enough,' as poor Richard says." They joined in desiring him to speak his mind, and, gathering round him, he proceeded as follows:

"Friends," said he, "the taxes are indeed very heavy; and, if those laid on by the government were the only ones we had to pay, we might more easily discharge them; but we have many others, and much more grievous to some of us. We are taxed twice as much by our idleness, three times as much by our pride, and four times as much by our folly; and from these taxes the commissioners cannot ease or deliver us by allowing an abatement. However, let us hearken to good advice, and something may be done for us; 'God helps them that help themselves,' as poor Richard says.

"I. It would be thought a hard government that should tax its people one-tenth part of their time to be employed in its service; but idleness taxes many of us much more: sloth, by bringing on diseases, absolutely shortens life. 'Sloth, like rust, consumes faster than labor wears; while the used key is always bright,' as Poor Richard says. 'But dost thou love life, then do not squander time, for that is the stuff life is made of,' as Poor Richard says. How much more than is necessary do we spend in sleep! forgetting that 'The sleeping fox catches no poultry,' and that 'there will be sleeping enough in the grave,' as Poor Richard says.

"'If time be of all things the most precious, wasting time must be,' as Poor Richard says, 'the greatest prodigality;' since, as he elsewhere tells us, 'Lost time is never found again; and what we call time enough, always proves little enough.' Let us then up and be doing, and doing to the purpose, so by diligence shall we do more with less perplexity. 'Sloth makes all things difficult, but industry all easy;' and 'he that riseth late, must trot all day, and shall scarce overtake his business at night;' while laziness travels so slowly, that poverty soon overtakes him. 'Drive thy business, let not that drive thee;' and 'early to bed, and early to rise, makes a man healthy, wealthy, and wise,' as Poor Richard says.

So what signifies wishing and hoping for better times? We may make these times better, if we bestir ourselves. 'Industry need not wish, and he that lives upon hopes will die fasting.' 'There are no gains without pains; then help hands, for I have no lands;' or if I have, they are smartly taxed. 'He that hath a trade, hath an estate; and he that hath a calling, hath an office of profit and honor,' as Poor Richard says; but then the trade must be worked at, and the calling well followed, or neither the estate nor the office will enable us to pay our taxes. If we are industrious, we shall never starve; for 'at the workingman's house hunger looks in, but dares not enter.' Nor will the bailiff or the constable enter, for 'industry pays debts, while despair increaseth them.' What though you have found no treasure, nor has any rich relation left a legacy, 'Diligence is the mother of good luck, and God gives all things to industry.' 'Then plough deep, while sluggards sleep, and you shall have corn to sell and to keep.' Work while it is called to-day, for you know not how much you may be hindered to-morrow. 'One to-day is worth two to-morrows,' as Poor Richard says; and farther, 'Never leave that till to-morrow, which you can do to-day.' If you were a servant, would you not be ashamed that a good master should catch you idle? Are you then your own master? Be ashamed to catch yourself idle, when there is so much to be done for yourself, your family, your country, and your king. Handle your tools without mittens; remember, that 'The cat in gloves catches no mice,' as Poor Richard says. It is true there is much to be done, and, perhaps, you are weak-handed; but stick to it steadily, and you will see great effects; for 'Constant dropping wears away stones;' and 'by diligence and patience the mouse ate in two the cable;' and 'little strokes fell great oaks.'

"Methinks I hear some of you say, 'Must a man afford himself no leisure?' I will tell thee, my friend, what Poor Richard says: 'Employ thy time well, if thou meanest to gain leisure; and, since thou art not sure of a minute, throw not away an hour.' Leisure is time for doing something useful; this leisure the diligent man will obtain, but the lazy man never; for 'A life of leisure and a life of laziness are two things. Many, without labor, would live by their wits only, but they break for want of stock;' whereas industry gives comfort, and plenty, and respect. 'Fly pleasures and they will follow you.' 'The diligent spinner has a large shift: and now I have a sheep and a cow, everybody bids me good morrow.'

"II. But with our industry we must likewise be steady, settled, and careful, and oversee our own affairs with our own eyes, and not trust too much to others, for, as Poor Richard says,

'I never saw an oft removed tree,
Nor yet an oft removed family,
That throve so well as those that settled be.'

"And again, 'Three removes is as bad as a fire;' and again, 'Keep thy shop, and thy shop will keep thee;' and again, 'If you would have your business done, go; if not, send;' and again,

'He that by the plough would thrive,
Himself must either hold or drive.'

And again, 'The eye of the master will do more work than both his hands;' and again, 'Want of care does us more damage than want of knowledge;' and again, 'Not to oversee workmen, is to leave them your purse open.' Trusting too much to others' care is the ruin of many; for 'In the affairs of this world, men are saved, not by faith, but by the want of it;' but a man's own care is profitable, for, 'If you would have a faithful servant, and one that you like, serve yourself.' 'A little neglect may breed great mischief;' 'for want of a nail the shoe was lost; for want of a shoe the horse was lost; and for want of a horse the rider was lost,' being overtaken and slain by the enemy; all for want of a little care about a horse-shoe nail.

"III. So much for industry, my friends, and attention to one's own business; but to these we must add frugality, if we would make our industry more certainly successful. A man may, if he knows not how to save as he gets, keep his nose all his life to the grindstone, and die not worth a groat at last. 'A fat kitchen makes a lean will;' and,

> 'Many estates are spent in the getting,
> Since women for tea forsook spinning and knitting,
> And men for punch forsook hewing and splitting.'

'If you would be wealthy, think of saving, as well as of getting.' 'The Indies have not made Spain rich, because her out-goes are greater than her in-comes.'

"Away then with your expensive follies, and you will not then have so much cause to complain of hard times, heavy taxes, and chargeable families; for

> 'Women and wine, game and deceit,
> Make the wealth small, and the want great.'

And farther, 'What maintains one vice would bring up two children.' You may think, perhaps, that a little tea, or a little punch now and then, diet a little more costly, clothes a little finer, and a little entertainment now and then, can be no great matter; but remember, 'Many a little makes a mickle.' Beware of little expenses; 'A small leak will sink a great ship,' as Poor Richard says; and again, 'Who dainties love, shall beggars prove;' and moreover, 'Fools make feasts, and wise men eat them.' Here you are all got together at this sale of fineries and nick-nacks. You call them goods, but, if you do not take care, they will prove evils to some of you. You expect they will be sold cheap, and perhaps they may, for less than the cost; but if you have no occasion for them, they must be dear to you. Remember what Poor Richard says, 'Buy what thou hast no need of, and ere long thou shalt sell thy necessaries.' And again, 'At a great pennyworth pause a while;' he means, that perhaps the cheapness is apparent only, and not real; or the bargain, by straitening thee in thy business, may do thee more harm than good. For in another place he says, 'Many have been ruined by buying good pennyworths.' Again, 'It is foolish to lay out money in a purchase of repentance;' and yet this folly is practised every day at auctions, for want of minding the Almanac. Many a one, for the sake of finery on the back, have gone with a hungry belly, and half starved their families; 'Silks, satins, scarlet, and velvets, put out the kitchen fire,' as Poor Richard says. These are not the necessaries of life; they can scarcely be called the conveniences; and yet, only because they look pretty, how many want to have them? By these and other extravagances, the greatest are reduced to poverty, and forced to borrow of those whom they formerly despised, but who, through industry and frugality, have maintained their standing; in which case it appears plainly, that 'A ploughman on his legs is higher than a gentleman on his knees,' as Poor Richard says. Perhaps they have had a small estate left them, which they knew not the getting of; they think 'It is day, and will never be night;' that a little to be spent out of so much is not worth minding; but 'always taking out of the meal-tub, and never putting in, soon comes to the bottom,' as Poor Richard says; and then, 'When the well is dry, they know the worth of water.' But this they might have known before, if they had taken his advice. 'If you would know the value of money, go and try to borrow some; for he that goes a borrowing, goes a sorrowing,' as Poor Richard says; and, indeed, so does he that lends to such people, when he goes to get it in again. Poor Dick farther advises, and says,

'Fond pride of dress is sure a very curse;
Ere fancy you consult, consult your purse.'

And again, 'Pride is as loud a beggar as want, and a great deal more saucy.' When you have bought one fine thing, you must buy ten more, that your appearance may be all of a piece; but Poor Dick says, 'It is easier to suppress the first desire, than to satisfy all that follow it.' And it is as truly folly for the poor to ape the rich, as for the frog to swell, in order to equal the ox.

'Vessels large may venture more,
But little boats should keep near shore.'

It is, however, a folly soon punished; for, as Poor Richard says, 'Pride that dines on vanity, sups on contempt; Pride breakfasted with Plenty, dined with Poverty, and supped with Infamy.' And, after all, of what use is this pride of appearance, for which so much is risked, so much is suffered? It cannot promote health nor ease pain; it makes no increase of merit in the person, it creates envy, it hastens misfortune.

"But what madness it must be to run in debt for these superfluities! We are offered by the terms of this sale, six months' credit; and that, perhaps, has induced some of us to attend it, because we cannot spare the ready money, and hope now to be fine without it. But, ah! think what you do when you run in debt; you give to another power over your liberty. If you cannot pay at the time, you will be ashamed to see your creditor; you will be in fear when you speak to him; you will make poor pitiful, sneaking excuses, and, by degrees, come to lose your veracity, and sink into base, downright lying; for 'The second vice is lying, the first is running in debt,' as Poor Richard says; and again, to the same purpose, 'Lying rides upon debt's back;' whereas a freeborn Englishman ought not to be ashamed nor afraid to see or speak to any man living. But poverty often deprives a man of all spirit and virtue. 'It is hard for an empty bag to stand upright.' What would you think of that prince, or of that government, who should issue an edict forbidding you to dress like a gentleman or gentlewoman, on pain of imprisonment or servitude? Would you not say that you were free, have a right to dress as you please, and that such an edict would be a breach of your privileges, and such a government tyrannical? And yet you are about to put yourself under that tyranny, when you run in debt for such dress! Your creditor has authority, at his pleasure, to deprive you of your liberty, by confining you in jail for life, or by selling you for a servant, if you should not be able to pay him. When you have got your bargain, you may, perhaps, think little of payment; but, as Poor Richard says, 'Creditors have better memories than debtors; creditors are a superstitious sect, great observers of days and times.' The day comes round before you are aware, and the demand is made before you are prepared to satisfy it; or, if you bear your debt in mind, the term, which at first seemed so long, will, as it lessens, appear extremely short: Time will seem to have added wings to his heels as well as his shoulders. 'Those have a short Lent, who owe money to be paid at Easter.' At present, perhaps, you may think yourselves in thriving circumstances, and that you can bear a little extravagance without injury; but

> 'For age and want save while you may,
> No morning sun lasts a whole day.'

"Gain may be temporary and uncertain; but ever, while you live, expense is constant and certain; and 'It is easier to build two chimneys than to keep one in fuel,' as Poor Richard says: so, 'Rather go to bed supperless than rise in debt.'

> 'Get what you can, and what you get hold,
> 'Tis the stone that will turn all your lead into gold.'

And, when you have got the philosopher's stone, sure you will no longer complain of bad times, or the difficulty of paying taxes.

"IV. This doctrine, my friends, is reason and wisdom; but, after all, do not depend too much upon your own industry, and frugality, and prudence, though excellent things; for they may all be blasted without the blessing of Heaven; and, therefore, ask that blessing humbly, and be not uncharitable to those that at present seem to want it, but comfort and help them. Remember, Job suffered, and was afterwards prosperous.

"And now to conclude, 'Experience keeps a dear school, but fools will learn in no other,' as Poor Richard says, and scarce in that; for it is true, 'We may give advice, but we cannot give conduct.' However, remember this, 'They that will not be counselled, cannot be helped;' and farther, that, 'If you will not hear reason, she will surely rap your knuckles,' as Poor Richard says."

Thus the old gentleman ended his harangue. The people heard it, and approved the doctrine, and immediately practiced the contrary, just as if it had been a common sermon; for the auction opened, and they began to buy extravagantly. I found the good man had thoroughly studied my Almanac, and digested all I had dropped on these topics during the course of twenty-five years. The frequent mention he made of me must have tired any one else; but my vanity was wonderfully delighted with it, though I was conscious that not a tenth part of the wisdom was my own which he ascribed to me; but rather the gleanings that I had made of the sense of all ages and nations. However, I resolved to be the better for the echo of it; and, though I had at first determined to buy stuff for a new coat, I went away, resolved to wear my old one a little longer. Reader, if thou wilt do the same, thy profit will be as great as mine.—I am, as ever, thine to serve thee,

RICHARD SAUNDERS.

Note.—The maxims of Poor Richard above quoted, were first printed in the vacant spaces between the remarkable days in the calendar in Poor Richard's Almanac, from 1732 to 1757. In 1757 they were collected into the above discourse of Father Abraham, and prefixed to the Almanac of that year. The piece was copied in all the newspapers of the American Continent, reprinted in England on a folio sheet, to be stuck up in houses, and translated into French, and, quite recently, in modern Greek.

LORD BACON.—ESSAY.—OF RICHES.

I cannot call riches better than the baggage of virtue; the Roman word is better—*impedimenta* (*hindrances*); for as the baggage is to an army, so is riches to virtue,—it cannot be spared nor left behind, but it hindereth the march; yea, and the care of it sometimes loseth or disturbeth the victory. Of great riches there is no great use, except it be in the distribution; the rest is but conceit. So saith Solomon, "Where much is, there are many to consume it; and what hath the owner but the sight of it with his eyes?" The personal fruition in any man cannot reach to feel great riches; there is a custody of them, or a power of dole (*distribution*), and a donative of them, or a fame of them, but no solid use to the owner. Do you not see what feigned prices are set upon little stones or rarities, and what works of ostentation are undertaken, because (*in order that*) there might seem to be some use of great riches? But then, you will say, they may be of use to buy men out of dangers or troubles; as Solomon saith, "Riches are a stronghold in the imagination of the rich man;" but this is excellently expressed, that it is an imagination, and not always in fact; for certainly great riches have sold more men than they have bought out. Seek not proud riches, but such as thou mayest get justly, use soberly, distribute cheerfully, and leave contentedly; yet have no abstract or friarly contempt of them, but distinguish, as Cicero saith well of Rabirius Posthumus, "In studio rei amplificandae, apparebat, non avaritiae praedam, sed instrumentum bonitati quaeri (*In his desire of increasing his riches, he sought not, it is evident, the gratification of avarice, but the means of beneficence*). Hearken also to Solomon, and beware of hasty gathering of riches: *Qui festinat ad divitias, non erit insons* (*He that maketh haste to be rich shall not be innocent*). The poets feign that when Plutus (which is riches) is sent from Jupiter, he limps, and goes slowly; but when he is sent from Pluto, he runs, and is swift of foot,—meaning that riches, gotten by good means and just labor, pace slowly, but when they come by the death of others (as by the course of inheritance, testaments, and the like), they come tumbling upon a man; but it might be applied likewise to Pluto taking him for the devil; for when riches come from the devil (as by fraud and oppression and unjust means), they come upon speed. The ways to enrich are many, and most of them foul; parsimony is one of the best, and yet is not innocent, for it withholdeth men from works of liberality and charity. The improvement of the ground is the most natural obtaining of riches, for it is our great mother's blessing, the earth; but it is slow. And yet, where men of great wealth do stoop to husbandry, it multiplyeth riches exceedingly. I knew a nobleman of England, that had the greatest audits of any man in my time—a great grazier, a great sheepmaster, a great timber man, a great collier, a great corn-master, a great lead man, and so of iron, and a number of the like points of husbandry; so as the earth seemed a sea to him in respect of the perpetual importations. It was truly observed by one, "that himself came very hardly to little riches;" for when a man's stock has come to that, that he can expect (*wait for*) the prime of markets, and overcome (*come upon*) those bargains which, for their greatness, are for men's money, and the partner in the industries of younger men, he cannot but increase mainly (*greatly*). The gains of ordinary trades and vocations are honest, and further by two things, chiefly, by diligence, and by a good name for good and fair dealing; but the gains of bargains are of a more doubtful nature, when men shall wait upon others' necessity; broke by servants, and instruments to draw them on; put off others cunningly, that would be better chapman (*purchasers*), and the like practices, which are crafty and naughty (*bad*). As for the chopping of bargains, when a man buys not to hold, but to sell over again, that commonly grindeth double, both upon the seller and upon the buyer. Shavings do greatly enrich, if the hands be well chosen that are trusted. Usury is the certainest means of gain, though one of the worst, as that whereby a man doth eat his bread, "*in sudore vultus alieni*" (*in the sweat of another's brow*), and besides, doth plough upon Sundays; but yet, certain though it be, it hath flaws; for that the scriveners and brokers do value (*represent as trustworthy*) unsound men to serve their own turn. The fortune in being the first in an invention or in a privilege, doth cause sometimes a wonderful overgrowth in riches; so it was with the first sugar man in the Canaries; therefore, if a man can play the true logician, to have as well judgment as invention, he may do great matters, especially if the times be fit. He that resteth upon gains certain, shall hardly grow to great riches; and he that puts all upon adventures, doth oftentimes break and come to poverty; it is good, therefore, to guard adventures with certainties that may uphold losses. Monopolies, and coemption of wares for resale, where they are not restrained, are great means to enrich; especially if the party have intelligence what things are like to come into request, and so store himself beforehand. Riches gotten by service, though it be of the best rise, yet when they are gotten by flattery, feeding humors, and other servile conditions, they may be placed among the worst. As for "fishing for testaments executorships" (as Tacitus saith of Seneca, "*Testamenta et orbos tanquam indagine capi*"), it is yet worse, by how much men submit themselves to meaner persons than in service.

Believe not much them that seem to despise riches, for they despise them that despair of them; and none worse when they come to them. Be not penny-wise; riches have wings, and sometimes they fly away of themselves; sometimes they must be set flying to bring in more. Men leave their riches either to their kindred or to the public; and moderate portions prosper best in both. A great estate left to an heir, is as a lure to all the birds of prey round about to seize on him, if he be not the better stablished (*to establish*) in years and judgment. Likewise glorious (*splendid*) gifts and foundation are like sacrifices without salt, and but the painted sepulchres of alms, which soon will putrefy and corrupt inwardly. Therefore measure not thine advancement (*gifts in money or property*) by quantity, but frame them by measure, and defer not charities till death; for, certainly, if a man weigh it rightly, he that doth so is rather liberal of another man's than his own.

JOHN KYRLE—THE MAN OF ROSS.

From Pope's MORAL ESSAYS—Epistle Third,—addressed to Allen, Lord Bathurst, *On the Use of Riches.*

After discussing in his terse way the point, whether the invention of money had been more beneficial or detrimental to mankind, the Poet draws pictures of various characters, but too well known in his day for their abuse of wealth, and for the shameful end to which they came at last, and then passing a deserved compliment on Lord Bathurst and Lord Oxford, asks:

But all our praises why should lords engross?
Rise, honest Muse! and sing the Man of Ross:
Pleas'd Vaga echoes through her winding bounds,
And rapid severn hoarse applause resounds.
Who hung with woods yon mountain's sultry brow?
From the dry rock who bade the water flow?
Not to the skies in useless column tost,
Or in proud falls magnificently lost,
But clear and artless, pouring through the plain
Health to the sick and solace to the swain.
Whose causeway parts the vale with shady rows?
Whose seats the weary traveler repose?
Who taught that heaven-directed tower to rise?
"The Man of Ross," each lisping babe replies.
Behold the market-place with poor o'erspread,
The Man of Ross divides the weekly bread:
He feeds yon almshouse, neat, but void of state,
Where age and want sits smiling at the gate:
Him portion'd maids, apprentic'd orphans blest,
The young who labor the old who rest.
Is any sick? the Man of Ross relieves,
Prescribes, attends, the medicine makes and gives.
Is there a variance? enters but his door,
Balk'd are the courts and contest is no more:
Despairing quacks with curses fled the place,
And vile attorneys, now a useless race.
B. Thrice happy man! enabled to pursue
What all so wish, but want the power to do!
Oh say, what sums that generous hand supply?
What mines to swell that boundless charity?
P. Of debts and taxes, wife and children clear,
This man possess'd five hundred pounds a year.
Blush, grandeur, blush! proud courts, withdraw your blaze,
Ye little stars! hide your diminished rays.
B. And what? no monument, inscription, stone,
His race, his form, his name almost unknown?
P. Who builds a church to God and not to fame,
Will never mark the marble with his name:
Go, search it there, where to be born and die,
Of rich and poor makes all the history:
Enough that virtue fill'd all the space between,
Prov'd by the ends of being to have been.

THE MAN OF ROSS immortalized in the above lines, was John Kyrle—a native of the parish of Dymock, in Gloucestershire and a descendant of John Hampden. He was born in 1664 and educated at Baliol College, Oxford, and took up his residence soon after in Ross on a small property given him by his father, and which he enlarged by the purchase of an estate on the banks of the Wye—"the Sylvan Wye of Wordsworth" on which Tintern Abbey stands.

The title of "The Man of Ross" was given to him by a country friend, in his lifetime; and Mr. Kyrle was highly pleased with the appellation, because it "conveyed a notion of plain honest dealing and unaffected hospitality." The principal addition to his landed property was an estate, called the Cleve, consisting of fields that extend along the left bank of the river, but raised considerably above its level. Along the skirts of these fields, Mr. Kyrle made a public walk, which still bears his name; he planted it with elms, and continued the plantation down the steep sides of the bank, which overhang the graceful, ever-winding Wye. It is to this plantation that Pope alludes in the lines,—

> Who hung with woods the mountain's sultry brow?

Mr. Kyrle's income has been pretty accurately stated at £500 a year. His favorite occupations were building and painting, in which his skill and taste were as freely exerted for the benefit of his friends as on his own improvements; he frequently planned and superintended architectural works, for persons who gladly availed themselves of his skill and taste.

While improving his own property, he added to the beauties of his favorite spot, and freely imparted to his townsmen the advantages which he had provided for the enjoyment of the lovely scenery around him. The churchyard was planted with elms by Kyrle, and a gate was erected by him leading to a field called "The Prospect," from its commanding a noble view of the rich scenery of the Wye. In times when the art of conveying water by pipes, for the accommodation of all the dwellers in a town, was yet in its infancy, a great benefit was conferred on the inhabitants of Ross, by the skill and enterprise of Mr. Kyrle, who made, in this field, an oval basin of considerable extent, lined it with brick, and paved it with stone, and caused the water from the river to be forced into it by an engine, and conveyed by under-ground pipes to the public cocks in the streets. When a more effectual mode of supply was introduced, the use of the fountain was abandoned, and the basin was filled up. This public work is recorded by the poet, in the lines,—

> From the dry rock, who bade the waters flow?
> Not to the skies, in useless columns tost,
> Or in proud falls magnificently lost:
> But clear and artless, pouring through the plain
> Health to the sick, and solace to the swain.

The next work noticed by Pope is a causeway, which was constructed through the exertions of Mr. Kyrle, and paid for by a subscription, to which he largely contributed. It crossed the low ground between the town and the bridge, on the high road to Hereford and Monmouth. This causeway has been since extended, and rendered permanent by the Commissioners of Turnpikes, who have converted it into a spacious driving-way, better adapted to the more frequent and rapid journeyings of modern times.

The walk in the Cleavefields above alluded to, was not only beautified with elms, his favorite tree, but seats were placed at intervals, where the "weary traveler" might "repose," or the lover of fine scenery contemplate at his ease, the beauties before him.

The passage which relates to the church of Ross is calculated to convey an erroneous notion of what was actually done by Mr. Kyrle. The line

> Who taught that heaven directed spire to rise?

coupled with another,—

> Who builds a church to God, and not to fame;

has led many to suppose, that the church was built by Kyrle. The facts are these:

The elegant spire which ornaments the landscape from whatever point it be viewed, was at one time in a dangerous state, which Mr. Kyrle's knowledge of architecture led him to discover. A parish meeting was convened at his special motion, and about forty-seven feet of the spire taken down and rebuilt, himself daily inspecting the work and contributing, over and above the assessment, towards its speedy conclusion. The great bell was given by Kyrle, who attended when it was cast at Gloucester, and threw into the melting pot his large own silver tankard, having first drunk his favorite toast of "Church and King."

> Behold the market-house, with poor o'erspread,
> The Man of Ross divides the weekly bread.

The distribution of the "weekly bread" at the market-house is a circumstance of peculiar interest in the life of Kyrle. The donation of bread was furnished by a grant, renewed by successive lords of the manor, of certain tolls on all corn brought to market. The man of Ross acted as the lord's almoner. Tradition reports, in homely language, that "it would have done one's heart good to see how cheerful the old gentlemen looked, while engaged in the distribution." At length the toll, thus voluntarily transferred to the poor at the will of each succeeding lord, was claimed by the townsmen as their's of right. The question was referred to the Man of Ross by consent of both parties; and he, preferring truth and justice before popularity and self-gratification, determined, as the evidence compelled him to do, that the toll belonged to the lord. So are pride and covetousness found in communities as well as individuals.

The remaining lines refer to various private acts of charity, for which a man of Kyrle's noble disposition would find frequent opportunities in whatever part of the world he might be placed. The town of Ross could tell of many who, before and since his time, and at this day, clothe the naked, feed the hungry, instruct the ignorant, and teach the infant's tongue to praise the name of Creator and Redeemer.

There is, however, one anecdote of Mr. Kyrle, which we are unwilling to omit, as it exhibits that noble confidence, which none but an honest man can feel or express towards his fellow-man. About a year after the death of the Man of Ross, a tradesman of the town came to the executor, and said privately to him, "Sir, I am come to pay you some money that I owed to the late Mr. Kyrle." The executor declared he could find no entry of it in the accounts. "Why, sir," said the tradesman, "that I am aware of. Mr. Kyrle said to me, when he lent me the money, that he did not think I should be able to repay it in his lifetime, and that it was likely you might want it before I could make it up; and so, said he, I wont have any memorandum of it, besides what I write and give you with it; and do you pay my kinsman when you can; and when you show him this paper, he will see that the money is right, and that he is not to take interest."

The Man of Ross died in 1754, at the advanced age of ninety, a bachelor. At the time of his decease, he owed nothing, and there was no money in his house. He was borne to the grave by his workmen and usual attendants, and amidst the whole population of Ross.

Though he disliked large parties, his house was open to the reception of his friends, in the genuine spirit of old-fashioned English hospitality. "He loved a long evening; enjoyed a merry tale, and always appeared discomposed when t'was time to part." His dishes were generally plain; malt liquor and cider were the only beverages introduced; there was no roast beef except on Christmas-day. At his kitchen fire-place was a large block of wood, for poor people to sit on; and a piece of boiled beef and three pecks of flour, in bread, were given to the poor every Sunday. The Man of Ross was a daily attendant at the service of the parish church. When the chiming of the bells began, all business ceased with him; he washed his hands and proceeded to his pew. When the church was newly pewed, about twenty years after his death, the rector and parishioners resolved that Mr. Kyrle's seat should remain, as it does at this day, in its original condition and style. A handsome tablet, with a bust of the Man of Ross, has long since removed the stigma imputed in the concluding lines of Pope's eulogy of Kyrle.

The Man of Ross, then, it has been seen, was a private gentleman of small fortune, with a talent for architecture, and a taste for what is now termed the picturesque, which he employed in the improvement and adorning of his town and neighborhood. Simple in his manners, he lavished no money on gaudy show or equipage. Faithful to his God, and upright in his dealings with man; intelligent, active, and ingenious; he was confided in as a friend, as an umpire, as a receiver and disposer of the subscriptions of others, whether to be employed in works for the public good, or in relieving the wants of indigence and age.

HENRY TAYLOR.

In his *Notes from Life*, Mr. Taylor devotes an Essay to the management of money, portions of which we here present, especially what relates to getting and spending

OF MONEY.

The philosophy which affects to teach us a contempt of money, does not run very deep; for, indeed, it ought to be still more clear to the philosopher than it is to ordinary men, that there are few things in the world of greater importance. And so manifold are the bearings of money upon the lives and characters of mankind, that an insight which should search out the life of a man in his pecuniary relations, would penetrate into almost every cranny of his nature. He who knows, like St. Paul, both how to spare and how to abound, has a great knowledge; for if we take account of all the virtues with which money is mixed up—honesty, justice, generosity, charity, frugality, forethought, self-sacrifice—and of their correlative vices, it is a knowledge which goes near to cover the length and breadth of humanity; and a right measure and manner in getting, saving, spending, giving, taking, lending, borrowing, and bequeathing, would almost argue a perfect man.

FIRSTLY—As to the *getting* of money. This involves dangers which do not belong to the mere possession of it. "Blessed is the rich that is found without blemish, and hath not gone after gold," says the Son of Sirach; and again, "He that loveth gold shall not be justified, and he that followeth corruption shall have enough thereof." Yet industry must take an interest in its own fruits; and God has appointed that the mass of mankind shall be moved by this interest, and have their daily labor sweetened by it. And there may be a blessing even upon the going after gold, if it be not with an inordinate appetite,—if the gold be not loved for its own sake, and if the manner of it be without blemish. But the danger arises out of the tendency of the human mind to forget the end in the means, and the difficulty of going after gold for the love of the benefits which it may confer, without going after it also for the mere love of getting it and keeping it, which is "following corruption." It behooves him who is getting money, therefore, even more than him who has it by inheritance, to bear in mind what are the uses of money, and what are the proportions and proprieties to be observed in saving, giving, and spending; for rectitude in the management of money consists in the symmetry of these three.

Sudden and enormous gains almost always disturb the balance; for a man can scarcely change his scale suddenly, and yet hold his proportions; and hence proceeds one of the many evils of highly speculative commerce, with its abrupt vicissitudes of fortune. The man who engages in it can scarcely have any fixed and regulated manner of dealing with his net income; he knows not how much he ought to save, how much he may permit himself to spend, how much he can afford to give; whilst, even if he could know, the extreme excitements of fear and hope to which he lies open, occupy his mind too much for him to give many thoughts to such matters. And if what is called bold commercial enterprise be a thing to be rejoiced in as promoting the physical well-being of mankind, and thereby, perhaps, in the train of consequences, their moral interests, it is only through that Providence by which good is brought out of evil. And the actors in such enterprises, when, as is mostly the case, they are merely "going after gold," and not considering either the physical or moral results, are, in their own minds and hearts, "following corruption," and are likely to "have enough thereof."

A moderated and governed course in the getting of money is the more difficult because this is, of all pursuits, that in which a man meets with the greatest pressure of competition. So many are putting their hearts into this work, that he who keeps his out of it is not unlikely to fare ill in the strife. And for this reason it were well for a man, not perhaps altogether to abate his desire of gain (though this should be done if it be excessive), but more assiduously still to direct his desires beyond, and purify the desire of gain by associating with it the desire to accomplish some scheme of beneficent expenditure. And let no man imagine that the mere investment for reproduction, though economists may justly regard it as beneficial to mankind, will react upon his own heart for good.

SECONDLY—As to the *saving* of money. The saving, like the getting, should be intelligent of a purpose beyond; it should not be saving for saving's sake, but for the sake of some worthy object to be accomplished by the money saved. And especially we are to guard against that accumulative instinct or passion which is ready to take possession of all collectors.

THIRDLY—As to the *spending* of money The art of living easily as to money, is to pitch your scale of living one degree below your means. Comfort and enjoyment are more dependent upon easiness in the detail of expenditure, than upon one degree's difference in the scale.

Guard against false associations of pleasure with expenditure,—the notion that because pleasure can be purchased with money, therefore money cannot be spent without enjoyment. What a thing costs a man is no true measure of what it is worth to him; and yet, how often is his appreciation governed by no other standard, as if there were a pleasure in expenditure *per se*.

Let yourself feel a want before you provide against it. You are more assured that it is a real want; and it is worth while to feel it a little, in order to feel the relief from it.

When you are undecided as to which of two courses you would like best, choose the cheapest. This rule will not only save money, but save also a good deal of trifling indecision.

Too much leisure leads to expense; because when a man is in want of objects, it occurs to him that they are to be had for money; and he invents expenditures in order to pass the time.

A thoroughly conscientious mode of regulating expenditure implies much care and trouble in resisting imposition, detecting fraud, preventing waste, and doing what in you lies to guard the honesty of your stewards, servants, and tradesmen, by not leading them into temptation, but delivering them from evil.

Prodigality is indeed the vice of a weak nature, as avarice is of a strong one; it comes of a weak craving for those blandishments of the world which are easily to be had for money, and which, when obtained, are as much worse than worthless as a harlot's love is worse than none.

FOURTHLY—As to *giving and taking*. All giving is not generous; and the gift of a spendthrift is seldom given in generosity; for prodigality is, equally with avarice, a selfish vice. Nor can there be a more spurious view of generosity than that which has been often taken by sentimental comedians and novelists, when they have represented it in combination with recklessness and waste. He who gives only what he would as readily throw away, gives without generosity; for the essence of generosity is in self-sacrifice. Waste, on the contrary, comes always by self-indulgence; and the weakness and softness in which it begins will not prevent the hard-heartedness to which all selfishness tends at last. When you give, therefore, take to yourself no credit for generosity, unless you deny yourself something in order that you *may* give.

I have known a man who was never rich, and was, indeed, in a fair way to be ruined, make a present of several hundred pounds, under what he probably conceived to be an impulse of generous friendship; but if that man had been called upon to get up an hour earlier in the morning to serve his friend, I do not believe that he would have done it. The fact was that he had no real value for money, no real care for consequences which were not to be immediate. In parting with some hundreds of pounds, he flattered his self-love with a show of self-sacrifice; in parting with an hour's folding of the hands to sleep, the self-sacrifice would have been real, and the show of it not very magnificent.

Again, do not take too much credit even for your self-denial, unless it be cheerfully and genially undergone. Do not dispense your bounties only because you know it to be your duty, and are afraid to leave it undone; for this is one of those duties which should be done more in the spirit of love than in that of fear. I have known persons who have lived frugally, and spent a large income almost entirely in acts of charity and bounty, and yet, with all this, they had not the open hand. When the act did not define itself as a charitable duty, the spirit of the God-beloved giver was wanting, and they failed in all those little genial liberalities towards friends, relatives, and dependents, which tend to cultivate the sympathies and kindnesses of our nature quite as much as charity to the poor, or munificence in the contribution to public objects. The kindness from which a gift proceeds will appear in the choice as well as in the cost of it.

There is often as much generosity in accepting gifts as there can be in bestowing them—the generosity of a nature which stands too strong in its humility to fear humiliation, which knows its own independence and is glad to be grateful.

Upon a very different sense of generosity are some of the practices of the present time founded. It is not an uncommon thing amongst some persons, with peculiar notions of doing things delicately, for contributions to be conveyed to some decayed gentlewoman under various pretences which are meant to disguise, more or less transparently, the fact that she receives money in charity. If a gentlewoman be in want, she should say so with openness, dignity, and truth, and accept in the manner that becomes a gentlewoman, in all lowliness, but without the slightest humiliation or shame, whatever money she has occasion for, and others are willing to bestow. The relations between her and them will in that case admit of respect on the one side, and gratitude on the other. But where false and juggling pretences are resorted to, no worthy or honest feeling can have place. Delicacy is a strong thing; and whether in giving or taking, let us always maintain the maxim that what is most sound and true is most delicate.

Lastly, there is a rule in giving which is often overlooked by those whose generosity is not sufficiently thoughtful and severe. Generosity comes to be perverted from its uses when it ministers to selfishness in others; and it should be our care to give all needful support to our neighbor in his self-denial, rather than to bait a trap for his self-indulgence; in short, to give him pleasure only when it will do him good, not when sacrifices on our part are the correlatives of abuses on his; for he who pampers the selfishness of another, does that other a moral injury which cannot be compensated by any amount of gratification imparted to him.

"Give thou to no man, if thou wish him well,
What he may not in honor's interest take;
Else shalt thou but befriend his faults, allied
Against his better with his baser self."

FIFTHLY—As to *lending* and *borrowing*. Never lend money to a friend unless you are satisfied that he does wisely and well in borrowing it. Borrowing is one of the most ordinary ways in which weak men sacrifice the future to the present, and thence it is that the gratitude for a loan is so proverbially evanescent. Take to heart therefore, the admonition the ancient courtier:

"Neither a borrower nor a lender be;
For loan oft loseth both itself and friend,
And borrowing dulls the edge of husbandry."

I have never known a debtor or a prodigal who was not, in his own estimation, an injured man; and I have generally found that those who had not suffered by them were disposed to side with them; for it is the weak who make an outcry, and it is by the outcry that the world is wont to judge. They who lend money to spendthrifts should be prepared, therefore, to suffer in their reputation as well as in their purse.

Let us learn from the Son of Sirach: "Many, when a thing was lent them, reckoned it to be found, and put them to trouble that helped them. Till he hath received, he will kiss a man's hand; and for his neighbor's money he will speak submissly; but when he should repay, he will prolong the time, and return words of grief, and complain of the time. If he prevail, he shall hardly receive the half, and he will count as if he had found it; if not, he hath deprived him of his money, and he hath gotten him an enemy without cause: he payeth him with cursing and railings, and for honor he will pay him with disgrace."

SIXTHLY—The subject of *bequeathing;* and some topics which might have fallen under this head have been anticipated in treating of motives for saving.

To make a will in one way or another is of course the duty of every person whose heir-at-law is not the proper inheritor of all he possesses; and unless where there is some just cause for setting them aside, expectations generated by the customs of the world are sufficient to establish a moral right to inherit, and to impose a corresponding obligation to bequeath. For custom may be presumed, in the absence of any reasons to the contrary, to have grown out of some natural fitness; and, at all events, it will have brought about an amount of adaptation which is often sufficient, as regards individual cases, to make a fitness where there was none. Unless in exceptional instances, therefore, in which special circumstances are of an overruling force, the disappointment of expectations growing out of custom is not to be inflicted without some very strong and solid reasons for believing that the custom needs to be reformed.

If it be not well for the natural or customary heirs that they should be disappointed, neither is it good for those to whom an inheritance is diverted, that wealth should come upon them by surprise. Sudden and unexpected accessions of wealth seldom promote the happiness of those to whom they accrue, and they are for the most part morally injurious, especially when they accrue by undue deprivation of another.

In general, the rule of judgment should be to avoid lifting people out of one station into another; and to aim at making such moderate additions to moderate fortunes in careful hands, as may not disturb the proportion of property to station; or, still better, may rectify any disproportion, and enable those who are living with a difficult frugality to live with a free frugality.

This rule is not, I fear, very generally regarded; for mere rectitude, and the observance of measures and proportions, does not much lay hold of the minds of men. On the contrary, there is a general disposition to add to anything which affects the imagination by its magnitude; and there is also in some people a sort of gloating over great wealth, which infects them with a propensity to feed a bloated fortune. Jaques took note of this when he saw the deer that was weeping in "the needless stream:"

> "Thou mak'st a testament
> As worldlings do, giving thy sum of more
> To that which had too much."
>
> —SHAK. *As You Like It*, Act ii. scene 1.

Thus it is that in the most solemn acts which men have to perform in the management of their money—in those, too, from which selfish ends seem most removed—they will often appear to be as little sensible of moral motives and righteous responsibilities as in any other transactions; and even a *testator jamjam moriturus* will dictate his will with a sort of posthumous cupidity, and seem to desire that his worldliness should live after him.

LORD LYTTON ON THE MANAGEMENT OF MONEY.

Lord Edward Bulwer Lytton has issued, in a little volume entitled *Caxtonia*, a series of essays on Life, Literature, and Manners, originally published in successive numbers of Blackwood's Magazine in 1862, the results of wide observation and experience on topics of great practical interest to the young, from one of which, on the management of money, we give copious extracts:

VALUE OF MONEY IN CHARACTER AND POWER.

In the humbler grades of life, certainly character is money. The man who gives me his labor in return for the wages which the labor is worth, pledges to me something more than his labor—he pledges to me certain qualities of his moral being—such as honesty, sobriety, and diligence. If, in these respects, he maintain his character, he will have my money as long as I want his labor; and, when I want his labor no longer, his character is money's worth to him from somebody else. If, in addition to the moral qualities I have named, he establish a character for other attributes which have their own price in the money market—if he exhibit a superior intelligence, skill, energy, zeal—his labor rises in value. Thus, in the humblest class of life, character is money; and, according as the man earns or spends the money, money in turn becomes character.

As money is the most evident power in the world's uses, so the use that he makes of money is often all that the world knows about a man. Is our money gained justly and spent prudently? our character establishes a claim on respect. Is it gained nobly and spent beneficently? our character commands more than respect—it wins a place in that higher sphere of opinion which comprises admiration, gratitude, love. Is money, inherited without merit of ours, lavished recklessly away? our character disperses itself with the spray of the golden shower,—it is not the money alone of which we are spendthrifts. Is money, meanly acquired, selfishly hoarded? it is not the money alone of which we are misers; we are starving our own human hearts—depriving them of their natural aliment in the approval and affection of others. We invest the money which we fancy so safe out at compound interest, in the very worst possession a man can purchase, viz., an odious reputation. In fact, the more we look round, the more we shall come to acknowledge that there is no test of a man's character more generally adopted than the way in which his money is managed. Money is a terrible blab; she will betray the secrets of her owner whatever he do to gag her. His virtues will creep out in her whisper—his vices she will cry aloud at the top of her tongue.

Money is character—money also is power. I have power not in proportion to the money I spend on myself, but in proportion to the money I can, if I please, give away to another. We feel this as we advance in years. How helpless is an old man who has not a farthing to give or to leave! But be moderately amiable, grateful, and kind, and, though you have neither wife nor child, you will never want a wife's tenderness nor a child's obedience if you have something to leave or to give. This reads like satire: it is sober truth.

ART OF MANAGING MONEY.

But the management of money is an art? True; but that which we call an art means an improvement, and not a deterioration of a something existent already in nature; and the artist can only succeed in improving his art in proportion as he improves himself in the qualities which the art demands in the artist. Now, the management of money is, in much, the management of self. If heaven allotted to each man seven guardian angels, five of them, at least, would be found, night and day, hovering over his pockets.

On the first rule of the art of managing money, all preceptors must be agreed. It is told in three words—"Horror of debt."

Horror of Debt.

Nurse, cherish, never cavil away the wholesome horror of DEBT. Personal liberty is the paramount essential to human dignity and human happiness. Man hazards the condition and loses the virtues of freeman, in proportion as he accustoms his thoughts to view, without anguish and shame, his lapse into the bondage of debtor. Debt is to man what the serpent is to the bird; its eye fascinates, its breath poisons, its coil crushes sinew and bone, its jaw is the pitiless grave. If you mock my illustration, if you sneer at the truth it embodies, give yourself no further trouble to learn how to manage your money. Consider yourself doomed; pass on your way with a jaunty step; the path is facile—paths to Avernus always are. But if, while I write, your heart, true to the instinct of manhood, responds to my words—if you say, "Agreed; that which you call the first rule for the management of money, I hold yet more imperative as the necessity to freedom and the life-spring of probity"—then advance on your way, assured that wherever it wind it must ascend. You see but the temple of Honor; close behind it is the temple of Fortune. You will pass through the one to the other.

No Endorsing. Give, but don't Lend.

Now comes the next danger. You will not incur debt for yourself; but you have a friend. Pythias, your friend, your familiar—the man you like best and see most of—says to you, "Damon, be my security—your name to this bill!" Heaven forbid that I should cry out to Damon, "Pythias means to cheat thee—beware!" But I address to Damon this observation, "Pythias asks thee to guarantee that three, six, or twelve months hence he will pay to another man—say to Dionysius—so many pounds sterling." Here your first duty, as an honest man, is not to Pythias, but to Dionysius. Suppose some accident happen—one of those accidents which, however impossible it may seem to your Pythias, constantly happen to the Pythiases of other Damons who draw bills on the bank of Futurity; suppose that the smut or the rain spoil the crops on which Pythias relies—or the cargoes he expects from Marseilles, California, Utopia, go down to the bottomless seas—Dionysius must come upon you! Can you pay to Dionysius what you pledge yourself to pay to him in spite of those accidents? He thinks those accidents not only possible, but probable, or he would not require your surety, nor charge twenty per cent. for his loan; and, therefore, since he clearly doubts Pythias, his real trust is in you. Do you merit the trust? Can you pay the money if Pythias cannot? And, allowing that you can pay the money, are your other obligations in life such as to warrant that sacrifice to friendship? If you cannot pay, or if you owe it to others more sacred than Pythias himself—owe it to your parents, your plighted bride, or wedded wife, or the children to whom what, before their birth, was your fortune, has become the trust-money for their provision—not to hazard for Pythias that for which, if lost, not you alone, but others must suffer,—then, do not common duty and common honesty forbid you to say, "I am surety to Pythias for that which it belongs not to Pythias but to Chance to fulfil?" I am the last man to say, "Do not help your friend," if you honorably can. If we have money, we manage it ill when we cannot help a friend at a pinch. But the plain fact is this, Pythias wants money. Can you give it, at whatever stint to yourself, in justice to others? If you can, and you value Pythias more than the money, give the money, and there is an end of it; but if you cannot give the money, don't sign the bill. Do not become what, in rude truth, you do become—a knave and a liar—if you guarantee to do what you know that you cannot do should the guarantee be exacted. He is generous who gives; he who lends may be generous also; but only on one condition, viz., that he can afford to give what he can afford to lend. Of the two, therefore, it is safer, friendlier, cheaper, in the long run, to give than to lend. Give, and you may keep your friend if you lose your money; lend, and the chances are that you lose your friend if ever you get back your money.

But, if you do lend, let it be with the full conviction that the loan is a gift, and count it among the rarest favors of Providence if you be ever repaid. Lend to Pythias on the understanding,—"This is a loan if you can ever repay me. I shall, however, make this provision against the chance of a quarrel between us, that if you cannot repay me, it stands as a gift."

And whatever you lend, let it be your money and not your name. Money you may get again, and, if not, you may contrive to do without it; name, once lost, you cannot get again, and, if you can contrive to do without it, you had better never have been born.

Having settled these essential preliminaries—1st. Never to borrow where there is a chance, however remote, that you may not be able to repay; 2dly, Never to lend what you are not prepared to give; 3dly, Never to guarantee for another what you cannot fulfil if the other should fail—you start in life with this great advantage—whatever you have, be it little or much, is your own. Rich or poor, you start as a freeman, resolved to preserve, in your freedom, the noblest condition of your being as man.

Independence, not Wealth, the true Aim in getting Money.

Now, fix your eyes steadily on some definite end in the future. Consider well what you chiefly wish to be; then compute at the lowest that which you are by talent, and at the highest that which you can be by labor. Always under-estimate the resources of talent; always put as against you the chances of luck. Then set down on the other side, as against talent defective, against luck adverse, all that which can be placed to the credit of energy, patience, perseverance. These last are infinite. Whatever be placed against them is finite.

The finest epithet for genius is that which was applied to Newton's genius, "patient." He who has patience coupled with energy is sure, sooner or later, to obtain the results of genius; he who has genius without patience, and without energy (if, indeed, such genius be a thing possible), might as well have no genius at all. His works and aims, like the plants of nature before the deluge, have no roots.

The man who succeeds above his fellows is the one who, early in life, clearly discerns his object, and toward that object habitually directs his powers. Thus, indeed, even genius itself is but fine observation strengthened by fixity of purpose. Every man who observes vigilantly and resolves steadfastly, grows unconsciously into genius.

Assuming that fortune be your object, let your first efforts be, not for wealth, but independence. Whatever be your talents, whatever your prospects, never be tempted to speculate away, on the chance of a palace that which you need as a provision against the workhouse.

Let your first care be, then, independence. Without pecuniary independence, you are not even intellectually free; with independence, even though it be gained through some occupation which you endure as a drudgery, still, out of the twenty-four hours, there will be always some hours for the occupation in which you delight.

Spend Less than you Earn.

To attain independence, so apportion your expenditure as to spend less than you have or you earn. Make this rule imperative. I know of none better. Lay by something every year, if it be but a shilling. A shilling laid by, net and clear from a debt, is a receipt in full for all claims in the past, and you go on, with light foot and light heart, to the future. "How am I to save and lay by?" saith the author, or any other man of wants more large than his means, The answer is obvious: "If you cannot increase your means, then you must diminish your wants." Every skilled laborer, of fair repute, can earn enough not to starve, and a surplus beyond that bare sufficiency.

A man of £300 a year, living up to that income, truly complains of poverty; but if he live at the rate of £250 a year, he is comparatively rich. "Oh," says Gentility, "but I must have this or that, which necessitates the yearly £50 you ask me to save; I must be genteel." Why that must? That certain folks may esteem you? Believe me, they esteem you much more for a balance at your banker's, than for that silver tea-pot or that mannikin menial in sugar-loaf buttons. "But," says Parental Affection, "I must educate my boy; that £50 saved from my income is the cost of his education." Is it so? Can all the schoolmasters in Europe teach him a nobler lesson than that of a generous thrift, a cheerful and brave self-denial? If the £50 be really the sum which the boy's schooling needs, and you can spare nothing else from your remaining £250, still save and lay by for a year, and, during that year, let the boy study at home, by seeing how gladly you all are saving for him.

He who has saved for one year, finds the security, pleasure, and pride in it a luxury so great that his invention will be quickened to keep it. Lay by! lay by! What makes the capital of nations? Savings; nothing else. Neither nations nor men are safe against fortune, unless they can hit on a system by which they save more than they spend. When that system is once established, at what a ratio capital accumulates! What resources the system gradually develops! In that one maxim is the secret of England's greatness! Do you think it mean to save more than you spend? You do in that what alone gives your country its rank in the universe. The system so grand for an empire cannot be mean for a citizen.

Earn More than you Spend.

Whatever your means be, so apportion your wants that your means may exceed them. Every man who earns but 10s. a week can do this if he please, whatever he may say to the contrary; for if he can live upon 10s. a week, he can live upon 9s. 11d.

In this rule mark the emphatic distinction between poverty and neediness. Poverty is relative, and, therefore, not ignoble; neediness is a positive degradation. If I have only £100 a year, I am rich as compared with the majority of my countrymen. If I have £5,000 a year, I may be poor compared with a majority of my associates; and very poor compared to my next-door neighbor. With either of these incomes, I am relatively poor or rich; but with either of these incomes I may be positively needy, or positively free from neediness. With the £100 a year, I may need no man's help; I may at least have "my crust of bread and liberty." But with £5,000 a year, I may dread a ring at my bell; I may have my tyrannical masters in servants whose wages I cannot pay; my exile may be at the fiat of the first long-suffering man who enters a judgment against me; for the flesh that lies nearest to my heart, some Shylock may be dusting his scales and whetting his knife. Nor is this an exaggeration. Some of the neediest men I ever knew, have a nominal £5,000 a year. Every man is needy who spends more than he has; no man is needy who spends less. I may so ill manage my money that, with £5,000 a year, I purchase the worst evils of poverty—terror and shame; I may so well manage my money that, with £100 a year, I purchase the best blessings of wealth—safety and respect.

POWER OF MONEY WELL MANAGED.

You have got money—you have it; and with it, the heart and the sense and the taste to extract from the metal its uses. Talk of the power of knowledge! What can knowledge invent that money cannot purchase? Money, it is true, cannot give you the brain of the philosopher, the eye of the painter, the ear of the musician, nor that inner sixth sense of beauty and truth by which the poet unites in himself, philosopher, painter, musician; but money can refine and exalt your existence with all that philosopher, painter, musician, poet, accomplish. That which they are, your wealth cannot make you; but that which they do is at the command of your wealth. You may collect in your libraries all thoughts which all thinkers have confided to books; your galleries may teem with the treasures of art; the air that you breathe may be vocal with music; better than all, when you summon the Graces, they can come to your call in their sweet name of Charities. You can build up asylums for age, and academies for youth. Pining Merit may spring to hope at your voice, and "Poverty grow cheerful in your sight." Money well managed deserves, indeed, the apotheosis to which she was raised by her Latin adorers; she is *Diva Moneta*—a Goddess.

Motives for Acquisition and Economy.

The first object connected with money is the security for individual freedom—pecuniary independence. That once gained, whatever is surplus becomes the fair capital for reproductive adventure. Adhere but to this rule in every speculation, however tempting; preserve free from all hazard that which you require to live on without depending upon others.

1. It is a great motive to economy, a strong safeguard to conduct, and a wonderful stimulant to all mental power, if you can associate your toil for money with some end dear to your affections. I once knew a boy of good parts, but who seemed incorrigibly indolent. His father, a professional man, died suddenly, leaving his widow and son utterly destitute. The widow resolved to continue the education of her boy, however little he had hitherto profited by it, engaged herself as teacher at a school, and devoted her salary to her son. From that moment the boy began to work in good earnest. He saw the value of money in this world; he resolved to requite his mother—to see her once more in a home of her own; he distinguished himself at school; he obtained, at the age of sixteen, an entry in a mercantile house. At the age of twenty, his salary enabled him to place his mother in a modest suburban lodging, to which he came home every night. At the age of thirty he was a rich man, and, visiting him at his villa, I admired his gardens. He said to me, simply, "I have no taste for flowers myself, but my mother is passionately fond of them. I date my first step in life from my resolve to find her a home; and the invention in my business to which I owe my rise from a clerk to a partner, could never have come into my brain, and been patiently worked out, if, night and day, I had not thought of my mother's delight in flowers."

2. A common motive with a young man is an honest love for the girl whom he desires to win as his wife. Nay, if no such girl yet has been met on the earth, surely she lives for him in the cloudland of Fancy. Wedlock, and wedlock for love, is the most exquisite hope in the innermost heart of every young man who labors; it is but the profligate idlers who laugh at that sacred ideal. But it is only the peasant or mechanic who has a right to marry on no other capital than that which he takes

from nature in sinews and thews. The man whose whole condition of being is in his work from day to day must still have his helpmate. He finds his helpmate in one who can work like himself, if his honest industry fail her. I preach to the day laborer no cold homilies from political economy. The happiness and morality of the working class necessitate early marriages; and for prudent provision against the chances of illness and death, there are benefit clubs and societies, which must stand in lieu of jointure and settlement. But to men of a higher grade in this world's social distinctions, Hymen must generally contrive to make some kind of compromise with Plutus. I grant that your fond Amaryllis would take your arm to the altar, though you have not a coat to your back; but Amaryllis may have parents, who not unreasonably ask, "How, young Strephon, can you maintain our daughter? and if your death demolish all those castles in the air, which you are now building without brick and mortar, under what roof will she lay her head?"

And suppose that no parents thus unkindly interpose between Amaryllis and you, still it is a poor return to the disinterested love of Amaryllis, to take her, thoughtless child, at her word. Amaryllis proves her unselfish love; prove yours, my friend Strephon. Wait, hope, strive—her ring is on your finger; her picture, though it be but a villainous photograph, hangs by your bedside; her image is deep in the deepest fold of your heart. Wait till you can joyously say, "Come, Amaryllis; Plutus relaxes his frown; here is a home which, if humble, at least is secure; and, if death suddenly snatch me away, here is no castle in air for my widow. Amaryllis shall never live upon alms!"

How your love will deepen and strengthen in that generous delay; and with your love, how your whole nature, mental and moral, will deepen and strengthen! Here, indeed, is an object for climbing the rough paths on to fortune; and here the first friendly opposition of Plutus only serves to place upon surer foundations the blessings promised by Hymen. Constancy in love necessitates patience and perseverance in all efforts for fortune; and, with patience and perseverance, a man of fair average capacities is the master of fortune.

3. The taste for books, and the desire to collect them, are no mean tests of a school-boy's career as man.

One of the most distinguished personages in Europe, showing me his library—which is remarkable for its extent and its quality (it was formed on the principle of including all works that treat, directly or indirectly, on the human mind, and thus necessarily includes almost every book worth the reading)—said to me: "Not only this collection, but my social successes in life, I trace back to the first franc I saved from the cake-shop to spend on the book-stall. When I was a young man, and received an invitation to a ball, not being then rich, I calculated what it would cost me in kid gloves and coach hire, and, refusing the ball, bought a book with the money. The books I bought, I read; the books I read influenced my career." Perhaps this eminent person might have thought of the balls thus refused in his early youth, when, being still young, he gave his own first ball as prime minister.

4. In the management of money, there are some things we do for show

—wisely, if we can afford it. Money is station, as well as character and power.

For a young man of a gentleman's station and a cadet's income, the only show needed is that which probably pleases himself the most—the effect produced by his own personal appearance. Dress will, therefore, not unreasonably, and by no means frivolously, demand some of his thoughts and much of his money. To the station of a young aspirant of fashion in the polite world, who is known not to be rich, it matters nothing what he pays for his lodging; he can always give his address at a club or hotel. No one cares how much or how little he pays for his dinner. No fine lady inquires if he calls at her house on foot or in a carriage. But society expects him to dress as much like a gentleman as if he were a young duke; and, fortunately, as young dukes nowadays do not wear gold lace and miniver, this is no unreasonable exaction on the part of society. A gentleman's taste in dress is, upon principle, the avoidance of all things extravagant. It consists in the quiet simplicity of exquisite neatness; but, as the neatness must be a neatness in fashion, employ the best tailor; pay him ready money, and, on the whole, you will find him the cheapest.

Mere dandies are but cut flowers in a bouquet,—once faded, they can never reblossom. In the drawing-room, as everywhere else, Mind, in the long run, prevails. And, O well-booted Achaian! for all those substantial good things which money well managed commands, and which, year after year, as you advance in life, you will covet and sigh for,—yon sloven, thick-shoed, and with cravat awry,—whose mind, as he hurries by the bow-window at White's, sows each fleeting moment with thoughts which grow not blossoms for bouquets, but corn-sheaves for garners—will, before he is forty, be far more the fashion than you. He is commanding the time out of which you are fading. And time, O my friend, is money! time wasted can never conduce to money well managed.

Note—LORD LYTTON was originally known to fame, in this country, as Edward Lytton Bulwer, and our people had hardly got used to the honorable title which Queen Victoria conferred on him and the astronomer Herschel, as the best representatives of the literature and science of her kingdom at the date of her inauguration (1838), when, in 1841, by royal license, and in pursuance of his mother's will, by which he succeeded to the Lytton estate of Knebworth, the popular author Bulwer was apparently lost in the less familiar designation of Sir Edward Bulwer Lytton, and again as Lord Lytton (since 1866), when, on the recommendation of the Premier (Lord Derby), in whose cabinet he had a seat as Secretary for the Colonies, he was elevated to the peerage as Baron Lytton; thenceforth we find his name recorded as the Rt. Hon. Lord Edward George Earle Bulwer Lytton. By whatever name he or the Queen or the Herald's College may choose to designate the author of the 'Caxtons,' his numerous works will be treasured as valuable contributions to the literature of the English language.

STUDIES AND CONDUCT.

KNOWLEDGE.—WISDOM.

THOUGHTS AND OPINIONS OF A STATESMAN.

WILLIAM VON HUMBOLDT, from whose Letters to a Lady, in whose loss of fortune incident to the German war with Napoleon I. he became interested as Envoy of Prussia to the Congress of Vienna, and whose disappointment he afterwards sought to alleviate by delicate pecuniary assistance, and friendly correspondence, was born in 1761, and died in 1835. Although less known out of Germany than his brother Alexander, his reputation, as a wise statesman, in Germany is second to no man of his time. These letters were published after his death, and an English edition appeared in 1850, in the series of *Small Books on Great Subjects*, by Pickering, under the secondary title given above. The English translator says: "Never was religion shown in a more amiable light than in the outpourings of his benevolent, yet firm mind. We see it as his guide and his support under all circumstances, and yet so unostentatiously so, that but for the publication of these Letters, probably none but his intimates would have known Wilhelm Von Humboldt than that he was a profound scholar, and an able statesman: and the moving spring of all his actions would have remained concealed till the day when the secrets of all heart shall be made known. It is well for the world that this has not been so: it is well to see the nobleman and the minister of state gathering from Christianity the rule of his life, and depending on its promises with the child-like confidence so acceptable to God."

BIBLE—OLD AND NEW TESTAMENT—ENGLISH AND GERMAN VERSION.

When the human race was nearer its origin, men seem to have had more greatness, more simplicity, more depth and nature in their thoughts and feelings, as well as in the expression of them. It is true we must arrive at the full and clear sight of this by laborious, and often by mechanical acquirements; but in this very labor there is a charm; or even if not, it is at least soon over when we are accustomed to application. Among the strongest, purest, and finest tones in which the voice of antiquity has reached us, may be reckoned the books of the Old Testament; and we can never be enough thankful that in our translation they have lost so little of their reality and strength of expression.[*] I have often reflected with pleasure on the existence of so much that is exalted, rich, and varied, as is contained in the Bible, in the books of the Old and New Testament; and if this be, as is very frequently the case, the only book in the hands of the people, yet have they in this a compendium of human thought, history, poetry, and philosophy so complete, that it would be difficult to find a feeling or a thought which has not its echo in these books. Neither is there much in them which is incomprehensible to a common simple mind. The learned may penetrate deeper, but no one can go away unsatisfied.

I have always sought so to weave myself into the present, so as to be able to win, as far as possible, an interior victory over outward discomfort; and exactly in this point of view the reading of the Bible is an infinite, and certainly far the surest source of consolation. I know nothing to be compared to it. The consolation of the Bible flows equally, though in different ways, from both the Old and New Testament. In both, the general guidance of God, and the universal government of his Providence is the prevailing idea; and from hence, in religiously disposed minds, springs the deeply fixed, and ineffaceable conviction, that even the order of things under which we ourselves suffer, is the most wisely appointed, and the most beneficial not only for the whole, but, in consequence of that, for the sufferer himself. In the new testament there is such a full predominance of the spiritual and the moral; every thing is so completely rested upon and carried back to purity of mind, that whatever else external or internal may happen to man, if he but strive earnestly and eagerly after this, all the rest falls back into shadow. Hence misfortune and every other sorrow loses a part of its oppressive influence, and at all events none of its *bitterness* remains. The infinite mildness of the whole New Testament doctrine, which figures God almost entirely on the merciful side, and in which the self-sacrificing love of Christ for the human race, is everywhere brought forward; joined with the example which he himself has set us, alleviates like a healing balsam, every pain both of mind and body. In the Old Testament we do not find this, but there again appear, and always with more of comfort than terror, the omnipotence and omniscience of the Creator and Beholder of all things, raising us above our own individual sorrows by the grandeur of the representation.

LOVE OF NATURE—TREES—SKY.

The sight of the heavens, under whatever aspect, has an unceasing charm for me, by night, whether it be gloomy or starlight; by day, whether the eye loses itself in deep blue, or amid passing clouds, or in an unvaried grey, makes no difference: every one of these aspects awakens some especial tone of mind in man; and when we have the happiness not to be dependent on the weather for our mood, we are not obliged to be melancholy because the sky is dark, but can bring forth from our own mind continually fresh thoughts as outward circumstances vary; a colorless sky is no evil. Complaints about the weather are quite foreign to my nature, and I do not like to hear others complain of it. I consider Nature as a combination of forces, which may afford the purest pleasure if we quietly acquiesce in and accommodate ourselves to all its varying developments, and look at it as a whole, of which it matters little whether the smaller details be pleasant, so long as its great cycle of events completes its course. I have an especial delight in living face to face with Nature in the country, so that I may watch the progress of every season in turn.

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[*] **Luther's translation is among the finest renderings ever made of the Hebrew Scriptures. It has the same simplicity and strength which characterizes the English version. Of this a writer in the Catholic Dublin Review (attributed to Prof. J. H. Newman), remarks on the Protestant English version of the Bible: "It lives on the ear like music that can never be forgotten—like the sound of a church bell which a convert hardly knows he can forego Its felicities seem to be almost things rather than mere words. It is part of the national mind, and the anchor of national seriousness. The memory of the dead passes into it. The potent traditions of childhood are stereotyped in its verses. The dower of all the gifts and trials of a man is hidden beneath its words. It is the representative of his best moments, and all that there has been about him of soft, and gentle, and poor, and penitent, and good. speaks to him forever out of the English Bible. It is his sacred thing, which doubt has never dimmed, and controversy never soiled. In the length and breadth of the land there is not a Protestant with one spark of righteousness about him, whose spiritual biography is not in his Saxon Bible."**

Even without attaching any thought of religion to the sight of the heavens, there is something inexpressibly exciting to the mind in thus losing one's self in the infinity of space: it at once takes away from life its little cares and desires, and from reality its otherwise oppressive weight. As surely as the knowledge of man is the first and weightiest concern in the affairs of men, so surely, on the other hand, is there nothing more narrowing to the mind than the perpetually keeping our eyes fixed on the small circle of human beings by whom we are hemmed in. We must return often to the contemplation and feeling of a higher power ruling in human affairs, as we see it in nature, ere we can safely come back to the fetters of society. Only thus do we learn to hold the things of real life to be matters of minor importance, to make less account of good or ill fortune, to be careless about wants and vexations, and to fix our attention solely on the changes which take place in it, so as to leave exterior life to a certain degree out of our consideration. The thought of death has then nothing in it which can frighten or sadden us; we rather enjoy the recalling it, and look on the farewell to life which must follow, as a natural step in the development of being.

Natural objects themselves, even when they make no claim to beauty, excite the feelings and occupy the imagination. Nature pleases, attracts, delights, merely because it is nature. We recognize in it an Infinite Power, greater and more effective than that of man, and yet not terrible: for a mild and beneficial influence seems to be extended on every object around us. Indeed the general character of nature is kind and good. When we talk of tremendous cliffs, and terribly sublime scenery, nature herself, nevertheless, is not to be feared. We soon become confident and at home among the wildest rocks, and feel that to the hermit who flies to her for shelter, she readily imparts tranquillity and peace.

Faith only can raise us above our little daily life, and worldly business;—that only can give the soul a direction to higher things, and to objects and ideas which alone have value or importance. It bestows what certainly you have not failed to enjoy, and which you doubtless value far beyond all that is called happiness or good fortune,—I mean the peace of the soul. It is grounded chiefly, no doubt, on an untroubled and clear conscience, but it is not attained by that alone: we must be content with our lot, and be able to say calmly and truly that we have not murmured at it, but on the contrary have received it when prosperous, with humility, when adverse, with resignation and real confidence in God's wise government. As a difficult, perplexing situation enhances the merit of accommodating ourselves to it without complaint, or of freeing ourselves from it by our own exertions, so we thus grow into better accord with our lot, whatever it may be.

We perceive in the immutable course of Nature, always following fixed laws, something infinitely consoling and tranquillizing. There is something here, then, that does not change; "an immovable pole amid the circling course of appearances," as Schiller beautifully expresses it in one of his poems. Man, then, belongs to a great and immutable order of things; and this as certainly leads to something higher, and finally to a point at which all doubts will be explained, and all difficulties made plain; when all the involved and apparently discordant laws will at last unite into one mighty diapason;—so must he, too, proceed with it to this same point. The character, moreover, which is impressed upon nature is always so gentle a one, that the finest feelings can not be wounded by it. The tranquillity, the joy, the splendor which she spreads around; the magnificence and grandeur in which she clothes herself, have nothing in them either of pretension or of haughtiness to repulse us. However deep may be the affliction, the mind nevertheless opens itself willingly to the feelings awakened by the numberless flowers of the renewed year, the joyful twitter of the birds, the splendor of the objects touched by the still brightening and strengthening sun, as he goes forth in his might. Grief then assumes the form of a gentle melancholy, which is not a stranger to a certain peace and sweetness even. If, finally, we regard nature as not really all, merely the bond between the spiritual and corporeal world; if we take it as the operation of matter and its forces, acting in obedience to the Creator, then it is the earthly shell only of man that belongs to it; himself, his higher and proper existence, steps beyond its bounds, and associates itself to another and nobler order of things. You will see from this, nearly, how I am influenced by the slowly approaching, yet beautiful Spring; how I enjoy it; and how it mingles with all my deepest feelings.

All the things which surround us contain in themselves matter for contemplation, for enjoyment, and for delight, both for the mind and feelings, which is wholly different from, and independent of, the peculiar destination and physical uses of any of them. The more we abandon ourselves to the pursuit of it, the more does this deeper sense—this meaning which belongs half to the natural object, and half to us who find it—open upon us. Let us only, for instance, look at the clouds. In themselves they are nothing but shapeless mist, the consequence of moisture and warmth; yet how, when viewed from the earth, do they enliven the sky with their forms and colors, and how many fancies and feelings do they give rise to in the mind.

The leaves of the trees are beginning to take the varied colors which so much ornament the autumn, and to a certain degree make up for the loss of the first fresh green. The little place which I inhabit (Tegel) is admirably made to show all the beauties which large handsome trees of different kinds exhibit through all the changing seasons of the year. All round the house they stand broad and spreading, like a green fan. Over the land alleys extend in various directions: in the garden and the vineyard there are fruit trees: in the park is a thick dark growth of underwood: the lake is surrounded with a forest, and the islands in it are bordered with trees and bushes. I have a particular love for trees, and I do not like to cut them down, nor even to transplant them. There is something melancholy in removing a poor tree from the society in which it has lived so long, to bring it into fresh soil, from which, however much it may disagree with its constitution, it has no chance of escaping any more, but must pine away through a slow exhaustion, awaiting its final death. There is generally an extraordinary character of anxious wish in trees, when they stand so fixed and cramped in the earth, and try to extend their summits and their branches as far as possible beyond the bounds of their roots. I know nothing in nature so formed to be the symbol of desire. Man, too, in fact, with all his apparent freedom of motion, is very much in the same state. He is still confined within a certain space, however widely he may roam: sometimes he can never stir from his small circle, (and this is often the case with women) the same little spot sees his cradle and his grave; or if he removes from it, he is drawn back to it from time to time by his inclination or his duty.

OCCUPATION—SILENT THINKING.

Occupation, in my mind, is as much a need as eating and drinking; even those who do nothing which a sensible man would call work, fancy at least that they are doing something: an idler, if even in his heart he means to remain such, does not tell the world so. There is, however, one employment, though of a different kind, which may be enjoyed while traveling: namely silent thought, which goes on without moving a finger, without reading and without writing. It is not indeed impossible to enjoy it at home, but very often business does not allow of it, and we can hardly attain it excepting in a lonely walk. I set a particular value upon it, and for this reason pass sleepless nights very willingly,—though this seldom happens to me except in illness, for I am a good and sound sleeper. Upon a journey it becomes almost necessary, and thus I can have my enjoyment with a clear conscience. . . . It is certainly true that men in general do not allow themselves time enough for thought: they do any thing rather than think, even when they are quite free from business; or when they have no higher demand on their time and attention, they give themselves up to mere empty nothings. The occupations of men are, unfortunately, for the most part such that they shut out all deep thought whilst they are going on, and yet make no ennobling claim on the mind: yet many have the folly to attach a value to these occupations, and even to pride themselves upon their diligence in them.

It is far better and more beneficial to read and think: that is, to read merely for the sake of matter to think about; because thought must have some object, some thread which may give it connection and sequence; and for this purpose we need only to take up any book that comes to hand, and can lay it aside again for any other. If this be done for some weeks, a person must be quite wanting in intellectual vigor and activity, if ideas do not arise of themselves which he will wish to pursue farther; or things which he desires to know more about; and then he enters upon a study of his own choice, not one imposed upon him by another. This is what I think I have seen done by all the women who lead any thing like an active intellectual life.

HAPPINESS.

God has given life to man in order that he may employ it in a way pleasing to Him, and conformable to duty; and that he may be happy in the consciousness of so doing. It is undoubtedly given us for our happiness. But happiness has always this condition attached to it, that, whether at first, or when longer days have brought their trials with them, we shall find it only in the practice of duty and self-command. I therefore never ask myself what value life has for me: I endeavor to fill it well, and leave the rest to Providence. The diminution which our powers sustain as age advances, I know full well by my own experience; but I can not on that account retract what I lately wrote to you, namely, that the proper aim of life is to increase to the utmost the mental capacity of the individual, according to the circumstances he is placed in, as well as to the length of life and power of knowledge granted him.

Happiness does not depend on those outward circumstances from which vexation and contradiction arise; and heaven has so wisely distributed these last, that he who outwardly appears the most favored, is not on that account the more free, even for a moment, from occasion and causes of interior grief. In a life already tolerably long, and certainly not spent in the easiest of positions, many things have happened to me which, for a longer or shorter time, have thrown me out of my usual course of life, exactly in those parts which touched me the most nearly.

LIFE AND DEATH.

Life and death, unalterably connected together, are but developments of the same being; and it would be inconsiderate and childish to wish to alter or delay the moral and physical maturity appointed to all men. Still less is it from the slightest weariness of life. I had the same feeling in my happiest days, and now that I am no longer susceptible of pleasure from without, but live quietly in myself and my recollections, I can still less have any quarrel with life. But the lapse of time has something in it delightful to me: time does not flow on emptily;—it brings, and takes, and leaves behind: through it we become continually richer, not exactly in enjoyment, but in something higher. I do not mean by this, mere dry experience;—no,—it is an elevation to a greater clearness of perception, and a fuller self-knowledge: what our nature is capable of, we are more thoroughly;—and we more clearly comprehend why it is capable of so much, and will be of yet more. And this being the center point of the present and future being of man, is the highest and the most important to him. . . .

I very early cherished the feeling that we must always be prepared to make our way manfully through whatever lot be appointed to us. Nevertheless, it is impossible not to regard life as an ocean through which we must steer our vessel with better or worse fortune, and then it is a natural feeling to like rather to have a short than a long voyage before us. This view of life,—as a whole, as a work that must be gone through with,—has always appeared to me a powerful aid towards the meeting death with equanimity. If, on the contrary, we look at life piecemeal, if we try only to add one pleasant day to another, as if we thought this could endure to all eternity, there is nothing more comfortless than to stand close upon the boundary where the series will at once be broken off. . . .

Man may make life what he pleases, and give it as much worth, both for himself and others, as he has energy for. Of course this must be understood only in a moral and spiritual sense; for we do not hold outward circumstances in our power; and it is only over our intellectual and moral being that we can rule: but over this our sway is complete. On this account,—if we can but bring ourselves to think calmly,—life has truly an inestimable value, even under the most unpleasant circumstances.

Death, and a new life, can only be for those who are already mature for the change. Man must seek to advance this ripeness in himself; for the ripeness of death, and that for the new life is one and the same. It consists in a separation from what is earthly; in an indifference to earthly enjoyments, and earthly activity; in a life in thoughts far removed from this world; in a casting off of anxious wishes for happiness here; in short, in a state of mind which looks without anxiety to what may be our lot in this world, and only considers the end after which we are striving: which exercises fortitude and self-denial, and maintains a strict self-goverment. From hence arises the serene, fearless peace of mind, which needs nothing exterior, and which extends over our intellectual existence a heavenly brightness, like the unclouded blue of an earthly sky.

Weariness of life,—insensibility to its enjoyments,—a wish that it were ended,—these have no share in my solitude.

Life is an outward occupation, an actual *work*, in all ranks and all situations. It is not, however, exactly this occupation or this work itself which is of such great value, but it is the thread by which better things, namely, our thoughts and feelings, are connected, or along which they run. It is the ballast without which the ship would have no steadiness on the waves.

CHARACTER OF THE HAPPY WARRIOR.

Who is the happy Warrior? Who is he
That every Man in arms should wish to be?
——It is the generous Spirit, who, when brought
Among the tasks of real life, hath wrought
Upon the plan that pleased his childish thought:
Whose high endeavors are an inward light
That makes the path before him always bright:
Who, with a natural instinct to discern
What knowledge can perform, is diligent to learn;
Abides by this resolve, and stops not there,
But makes his moral being his prime care;
Who, doomed to go in company with Pain,
And Fear, and Bloodshed, miserable train!
Turns his necessity to glorious gain;
In face of these doth exercise a power
Which is our human nature's highest dower;
Controls them and subdues, transmutes, bereaves
Of their bad influence, and their good receives:
By objects, which might force the soul to abate
Her feeling, rendered more compassionate;
Is placable—because occasions rise
So often that demand such sacrifice;
More skillful in self-knowledge, even more pure,
As tempted more; more able to endure,
As more exposed to suffering and distress;
Thence, also, more alive to tenderness.
—'Tis he whose law is reason; who depends
Upon that law as on the best of friends;
Whence, in a state where men are tempted still
To evil for a guard against worst ill,
And what in quality or act is best
Doth seldom on a right foundation rest,
He fixes good on good alone, and owes
To virtue every triumph that he knows:
—Who, if he rise to station of command,
Rises by open means; and there will stand
On honorable terms, or else retire,
And in himself possess his own desire;
Who comprehends his trust, and to the same
Keeps faithful with a singleness of aim;
And therefore does not stoop, nor lie in wait
For wealth, or honors, or for worldly state;
Whom they must follow; on whose head must fall,
Like showers of manna, if they come at all:
Whose powers shed round him in the common strife,
Or mild concerns of ordinary life,

A constant influence, a peculiar grace;
But who, if he be called upon to face
Some awful moment to which heaven has joined
Great issues, good or bad for human kind,
Is happy as a Lover; and attired
With sudden brightness, like a Man inspired;
And, through the heat of conflict, keeps the law
In calmness made, and sees what he foresaw;
Or if an unexpected call succeed,
Come when it will, is equal to the need:
—He who though thus endued as with a sense
And faculty for storm and turbulence,
Is yet a Soul whose master-bias leans
To homefelt pleasures and to gentle scenes;
Sweet images! which, wheresoe'er he be,
Are at his heart; and such fidelity
It is his darling passion to approve;
More brave for this, that he hath much to love:—
'Tis, finally, the Man, who, lifted high,
Conspicuous object in a Nation's eye,
Or left unthought of in obscurity,—
Who, with a toward or untoward lot,
Prosperous or adverse, to his wish or not,
Plays, in the many games of life, that one
Where what he most doth value must be won:
Whom neither shape of danger can dismay,
Nor thought of tender happiness betray;
Who, not content that former worth stand fast,
Looks forward, persevering to the last,
From well to better, daily self-surpast:
Who, whether praise of him must walk the earth
For ever, and to noble deeds give birth,
Or he must go to dust without his fame,
And leave a dead unprofitable name,
Finds comfort in himself and in his cause;
And, while the mortal mist is gathering, draws
His breath in confidence of Heaven's applause:
This is the happy Warrior; this is He
Whom every Man in arms should wish to be.

ODE TO DUTY.

Stern Daughter of the Voice of God!
O Duty! if that name thou love
Who art a Light to guide, a Rod
To check the erring, and reprove;
Thou, who art victory and law
When empty terrors overawe;
From vain temptations dost set free;
And calm'st the weary strife of frail humanity.

HENRY TAYLOR—1800.

Henry Taylor has won and holds permanently a high place among English dramatists and essayists, by his "Philip Van Artevelde." "Edwin the Fair," "The Statesman," and "Notes from Life." His maxims and reflections are the results of an attentive observation of life in office or at large, noted down at the time, and digested and shaped by a well balanced mind, enriched by liberal studies. Mr. Taylor, in his "*Notes from Life*," has an Essay on Wisdom, which is the offspring of the same spirit that prompted Southey in the utterance of Doctor Dove on Wisdom and Knowledge, in a chapter of the "Doctor," already given.

WISDOM IN THE CONDUCT OF AFFAIRS AND OF LIFE.

Wisdom is not the same with understanding, talents, capacity, ability, sagacity, sense, or prudence—not the same with any one of these; neither will all these together make it up. It is that exercise of the reason into which the heart enters—a structure of the understanding rising out of the moral and spiritual nature.

Wisdom is corrupted by ambition, even when the quality of the ambition is intellectual. For ambition, even of this quality, is but a form of self-love, which, seeking gratification in the consciousness of intellectual power, is too much delighted with the exercise to have a single and paramount regard to the end; and it is not according to wisdom that the end—that is, the moral and spiritual consequences—should suffer derogation in favor of the intellectual means. God is love, and God is light; whence it results that love is light; and it is only by following the effluence of that light, that intellectual power issues into wisdom. The intellectual power which loses that light and issues into intellectual pride, is out of the way to wisdom, and will not attain even to intellectual greatness. For though many arts, gifts, and attainments may co-exist in much force with intellectual pride, an open greatness can not; and of all the correspondences between the moral and intellectual nature, there is none more direct and immediate than that of humility with capaciousness. If pride of intellect be indulged, it will mark out to a man conscious of great talents the circle of his own intellectual experiences as the only one in which he can keenly recognize and appreciate the intellectual universe; and there is no order of intellectual men which stands in a more strict limitation than that of the man who can not conceive what he does not contain. Men who are accustomed to write or speak for effect, may write or speak what is wise from time to time, because they may be capable of thinking and intellectually adopting what is wise: but they will not be wise men; because the love of God, the love of man, and the love of truth not having the mastery with them, the growth and structure of their minds must needs be perverted if not stunted. Thence it is that so many men are observed to speak wisely and yet act foolishly; they are not deficient in their understandings, but the wisdom of the heart is wanting to their ends and objects, and to those feelings which have the direction of their acts. And if they do speak wisely, it is not because they are wise; for the permanent shape and organization of the mind proceeds from what we feel and do, and not from what we speak, write, or think. There is a great volume of truth in the admonition which teaches us that the spirit of obedience is to prepare the way, action to come next, and that knowledge is not precedent to these, but consequent: "Do the will of my Father which is in heaven, and thou shalt know of the doctrine."

In some discussions, a wise man will be silenced by argumentation, only because he knows that the question should be determined by considerations which lie beyond the reach of argumentative exhibition. And indeed, in all but purely scientific questions, arguments are not to be submitted to by the judgment as first in command; rather they are to be used as auxiliaries and pioneers; the judgment should profit by them to the extent of the services they can render, but after their work is done, it should come to its conclusions upon its own free survey. I have seldom known a man with great powers of argumentation abundantly indulged, who could attain to an habitually just judgment. In our courts of law, where advocacy and debate are most in use, ability, sagacity, and intellectual power flourish and abound, whilst wisdom is said to have been debarred.

Ambition and self-love will commonly derange that proportion between the active and passive understanding which is essential to wisdom, and will lead a man to value thoughts and opinions less according to their worth and truth, than according as they are his own or another's. The objection made by Brutus to Cicero in the play,—that he "would never follow any thing which other men began"—points to one corruption operated by self-love upon a great understanding. Some preference a man may reasonably accord to what is the growth of his own mind apart from its absolute value, on the ground of its specific usefulness to himself; for what is nature to the soil will thrive better and bear more fruit than what has been transplanted: but, on the other hand, if a man would enlarge the scope and diversify the kinds of his thoughts and contemplations, he should not think too much to apprehend nor talk too much to listen. He should cherish the thoughts of his own begetting with a loving care and a temperate discipline—they are the *family* of his mind and its chief reliance—but he should give a hospitable reception to guests and to travelers with stories of far countries, and the family should not be suffered to crowd the doors.

Even without the stimulant of self-love, some minds, owing to a natural redundance of activity and excess of velocity and fertility, can not be sufficiently passive to be wise. A capability to take a thousand views of a subject is hard to be reconciled with directness and singleness of judgment; and he who can find a great deal to say for any view, will not often go the straight road to the one view that is right.

The temptation by which a man of genius, with a general capacity of enjoyment, is assailed, consists in imagining that he has within himself and by virtue of his temperament, sources of joy altogether independent of conduct and circumstances. It is true that he has these sources on this unconditional tenure for a time; and it is owing to this very truth that his futurity is in danger,—not in respect of wisdom only, but also in respect of happiness. And if we look to recorded examples, we shall find that a great capacity of enjoyment does ordinarily bring about the destruction of enjoyment in its own ulterior consequences, having uprooted wisdom by the way.

A man of genius, so gifted—or, let us rather say, so tempted—lives, until the consummation approaches, as if he possessed some elixir or phylactery, reckless of consequences, because his happiness, being so inward to his nature, seems to be inherent and indefeasible. Wisdom is not wanted. The intellect, perhaps, amidst the abundance of its joys, rejoices in wise contemplations; but wisdom is not adopted and domesticated in the mind, owing to the fearlessness of the heart. For wisdom will have no hold on the heart in which joy is not tempered by fear. The fear of the Lord, we know, is the beginning of it; and some hallowing and chastening influences of fear will always go along with it. Fear, indeed, is the mother of foresight; spiritual fear, of a foresight that reaches beyond the grave; temporal fear, of a foresight that falls short; but without fear there is neither the one foresight nor the other; and as pain has been truly said to be the deepest thing in our nature, so is it fear that will bring the depths of our nature within our knowledge:—

"What sees rejoicing genius in the earth?
A thousand meadows with a thousand herds
Freshly luxuriant in a May-day dawn;
A thousand ships that caracole and prance
With freights of gold upon a sunny sea;
A thousand gardens gladdened by all flowers,
That on the air breathe out an odorous beauty."

Genius may see all this and rejoice; but it will not exalt itself into wisdom, unless it see also the meadow in the livid hues of winter, the ship under bare poles, and the flower when the beauty of the fashion of it perishes.

On the other hand, wisdom without genius (a far more precious gift than genius without wisdom) is, by God's blessing upon the humble and loving heart, though not as often met with as "the ordinary of Nature's sale-work," yet not altogether rare; for the desire to be right will go a great way towards wisdom. Intellectual guidance is the less needed where there is little to lead astray—where humility lets the heart loose to the impulses of love. That we can be wise by impulse will seem a paradox to some; but it is a part of that true doctrine which traces wisdom to the moral as well as the intellectual mind, and more surely to the former than to the latter—one of those truths which is recognized when we look into our nature through the clearness of a poetic spirit:—

"Moments there are in life—alas how few!—
When casting cold prudential doubts aside,
We take a generous impulse for our guide,
And following promptly what the heart thinks best,
Commit to Providence the rest;
Sure that no after-reckoning will arise
Of shame or sorrow, for the heart is wise.
And happy they who thus in faith obey
Their better nature: err sometimes they may,
And some sad thoughts lie heavy in the breast,
Such as by hope deceived are left behind;
But like a shadow these will pass away
From the pure sunshine of the peaceful mind."—SOUTHEY.

The doctrine of wisdom by impulse is no doubt liable to be much misused and misapplied. The right to rest upon such a creed accrues only to those who have so trained their nature as to be entitled to trust it. It is the impulse of the *habitual* heart which the judgment may fairly follow upon occasion—of the heart which, being habitually humble and loving, has been framed by love to wisdom. Some such fashioning love will always effect; for love can not exist without solicitude, solicitude brings thoughtfulness, and it is in a thoughtful love that the wisdom of the heart consists. The impulse of such a heart will take its shape and guidance from the very mold in which it is cast, without any application of the reason expressed; and the most inadvertent motion of a wise heart will for the most part be wisely directed; providentially, let us rather say: for Providence has no more eminent seat than in the wisdom of the heart.

Wisdom by impulse, then, is to be trusted in by those only who have habitually used their reason to the full extent of its powers in forming the heart and cultivating the judgment, whilst, owing to its constitutional deficiency, or to its peculiarity (for the reason may be unserviceable from other causes than deficiency), they are conscious that their judgment is likely to be rather perplexed than cleared by much thinking on questions on which they are called upon to act or decide.

An eminent statesman is said to have averred, that when he was conscious of having taken a decision with all due care and consideration, to the best of his judgment and with the best intentions, he never looked back to it with a moment's regret, though the result might prove it to have been wholly erroneous. This is a frame of mind highly conducive to civil courage, and therefore not without its advantages in political life. But it is not easily conducive to wisdom. Nor, perhaps, in this unqualified form, is it to be altogether vindicated in morals. At all events, so much regret might be felt, if no more, as would suffice to awaken some self-questionings, not merely as to the specific moral rectitude accompanying or proximately preceding the particular act, but as to that general and life-long training of the heart to wisdom, which gives the best assurance of specific results, and of which, therefore, specific failures should suggest the deficiency. Some short-comings of this kind there must of course be in all human beings, and they should be at all times aware of it; but it is in the order of Nature that this consciousness should be quickened from time to time by the contemplation of evil consequences arising from specific errors of judgment, however innocent in themselves; which contemplation, accompanied with a natural regret, constitutes what may be called a repentance of the understanding—not easily to be escaped by a plain man, nor properly to be repudiated by a philosopher.

The main scope and design of this disquisition having been to inculcate that wisdom is still more essentially a moral and spiritual than it is an intellectual attribute, that genius can mount to wisdom only by Jacob's ladder, and that knowledge can only be converted into wisdom by an application of the heart, I can not better close it than with that declaration of the nature of wisdom which is delivered in the 28th chapter of the book of Job:—

"Whence then cometh wisdom? and where is the place of understanding?
"Seeing it is hid from the eyes of all living, and kept close from the fowls of the air.
"Destruction and death say, we have heard the fame thereof with our ears.
"God understandeth the way thereof, and he knoweth the place thereof.
"For he looketh to the ends of the earth, and seeth under the whole Heaven;
"To make the weight for the winds; and he weigheth the waters by measure.
"When he made a decree for the rain, and a way for the lightning of the thunder:
"Then did he see it, and declare it; he prepared it, yea, and searched it out.
"And unto man he said, Behold, the fear of the Lord, that is wisdom; and to depart from evil is understanding."

He was one
Of many thousand such that die betimes,
Whose story is a fragment known to few;
Then comes the man who has the luck to live,
And he's a prodigy. Compute the chances,
And deem there ne'er a one in dangerous times
Who wins the race of glory, but than him
A thousand men more gloriously endowed,
Have fallen upon the course; a thousand others
Have had their fortunes foundered by a chance,
Whilst lighter barks pushed past them; to whom add
A smaller tally, of the singular few,
Who, gifted with predominating powers,
Bear yet a temperate will and keep the peace.
The world knows nothing of its greatest men.

H. TAYLOR.—Philip Van Artevelde.

All my life long,
I have beheld with most respect the man
Who knew himself, and knew the ways before him,
And from among them chose considerately,
With a clear foresight, not a blind courage;
And having chosen, with a steadfast mind
Pursued his purposes. I trained myself
To take my place in high or low estate
As one of that scant order of mankind.

H. TAYLOR.—Philip Van Artevelde

MILITARY SCHOOLS AND EDUCATION.

An account of the Military and Naval Schools of different countries, with special reference to the extension and improvement, among ourselves, of similar institutions and agencies, both national and state, for the special training of officers and men for the exigencies of war, was promised by the Editor in his original announcement of "*The American Journal and Library of Education.*" Believing that the best preparation for professional and official service of any kind, either of peace or war, is to be made in the thorough culture of all manly qualities, and that all special schools should rest on the basis, and rise naturally out of a general system of education for the whole community, we devoted our first efforts to the fullest exposition of the best principles and methods of elementary instruction, and to improvements in the organization, teaching, and discipline of schools, of different grades, but all designed to give a proportionate culture of all the faculties. We have from time to time introduced the subject of Scientific Schools—or of institutions in which the principles of mathematics, mechanics, physics, and chemistry are thoroughly mastered, and their applications to the more common as well as higher arts of construction, machinery, manufactures, and agriculture, are experimentally taught. In this kind of instruction must we look for the special training of our engineers, both civil and military; and schools of this kind established in every state, should turn out every year a certain number of candidates of suitable age to compete freely in open examinations for admission to a great National School, like the Polytechnic at Paris, or the purely scientific course of the Military Academy at West Point, and then after two years of severe study, and having been found qualified by repeated examinations, semi-annual and final, by a board composed, not of honorary visitors, but of experts in each science, should pass to schools of application or training for the special service for which they have a natural aptitude and particular preparation.

The terrible realities of our present situation as a people—the fact that within a period of twelve months a million of able bodied men have been summoned to arms from the peaceful occupations of the office, the shop, and the field, and are now in hostile array, or in actual conflict, within the limits of the United States, and the no less alarming aspect of the future, arising not only from the delicate position of our own relations with foreign governments, but from the armed interference of the great Military Powers of Europe in the internal affairs of a neighboring republic, have brought up the subject of MILITARY SCHOOLS, AND MILITARY EDUCATION, for consideration and action with an urgency which admits of no delay. Something must and will be done at once. And in reply to numerous letters for information and suggestions, and to enable those who are urging the National, State or Municipal authorities to provide additional facilities for military instruction, or who may propose to establish schools, or engraft on existing schools exercises for this purpose,—to profit by the experience of our own and other countries, in the work of training officers and men for the ART OF WAR, we shall bring together into a single volume, "*Papers on Military Education,*" which it was our intention to publish in successive numbers of the NEW SERIES of the "*American Journal of Education.*"

MILITARY SCHOOLS AND EDUCATION.

This volume, as will be seen by the Contents, presents a most comprehensive survey of the Institutions and Courses of Instruction, which the chief nations of Europe have matured from their own experience, and the study of each other's improvements, to perfect their officers for every department of military and naval service which the exigences of modern warfare require, and at the same time, furnishes valuable hints for the final organization of our entire military establishments, both national and state.

We shall publish in the Part devoted to the United States, an account of the Military Academy at West Point; the Naval Academy at Newport, and other Institutions and Agencies,—State, Associated, and Individual, for Military instruction, now in existence in this country, together with several communications and suggestions which we have received in advocacy of Military Drill and Gymnastic exercises in Schools. We do not object to a moderate amount of this Drill and these exercises, properly regulated as to time and amount, and given by competent teachers. There is much of great practical value in the military element, in respect both to physical training, and moral and mental discipline. But we do not believe in the physical degeneracy, or the lack of military aptitude and spirit of the American people—at least to the extent asserted to exist by many writers on the subject. And we do not believe that any amount of juvenile military drill, any organization of cadet-corps, any amount of rifle or musket practice, or target shooting, valuable as these are, will be an adequate substitute for the severe scientific study, or the special training which a well organized system of military institutions provides for the training of officers both for the army and navy.

Our old and abiding reliance for industrial progress, social well being, internal peace, and security from foreign aggression rests on:—

I. The better Elementary education of the whole people—through better homes and better schools—through homes, such as Christianity establishes and recognizes, and schools, common because cheap enough for the poorest, and good enough for the best,—made better by a more intelligent public conviction of their necessity, and a more general knowledge among adults of the most direct modes of effecting their improvement, and by the joint action of more intelligent parents, better qualified teachers, and more faithful school officers. This first great point must be secured by the more vigorous prosecution of all the agencies and measures now employed for the advancement of public schools, and a more general appreciation of the enormous amount of stolid ignorance and half education, or mis-education which now prevails, even in states where the most attention has been paid to popular education.

II. The establishment of a System of Public High Schools in every state—far more complete than exists at this time, based on the system of Elementary Schools, into which candidates shall gain admission only after having been found qualified in certain studies by an open examination. The studies of this class of schools should be preparatory both in literature and science for what is now the College Course, and for what is now also the requirements in mathematics in the Second Year's Course at the Military Academy at West Point.

III. A system of Special Schools, either in connection with existing Colleges, or on an independent basis, in which the principles of science shall be taught with special reference to their applications to the Arts of Peace and War. Foremost in this class should stand a National School of Science, organized and conducted on the plan of the Polytechnic School of France, and preparatory to Special Military and Naval Schools.

IV. The Appointment to vacancies, in all higher Public Schools, either among teachers or pupils, and in all departments of the Public Service by Open Competitive Examination.

HENRY BARNARD.

HARTFORD, CONN., 1862.

REVISED EDITION.

The first edition of Military Schools in France and Prussia was issued in 1862, as a number of the American Journal of Education; and subsequently in the same year this portion was printed as Part I. of a comprehensive survey of the whole field of Instruction in the Science and Art of War in different countries. The circumstances under which the publication was begun, are set forth in the Preface to the imperfect edition of 1862. Now that the survey in the serial chapters of the Journal is as complete as the material at the command of the Editor, and the space which he can give to this special subject enable him to make it, the several chapters have been revised and brought together in a single volume, to present the actual condition of this important department of national education in the principal states of Europe, as well as in our own country.

It is due to the late Col. Samuel Colt, the inventor of the Colt Revolver, and the founder of the Colt Patent Fire-Arms Factory—two enterprises which have changed the character and the mode of constructing fire-arms in every country—to state that the information contained in the first edition of this Treatise, was collected and prepared at his request, to assist him in maturing the plan of a School of Mechanical Engineering, which he proposed to establish on his estate at Hartford, and on which, after the breaking out of the War of Secession, he decided to engraft both military drill, and military history, and to give that scientific instruction which every graduate of our national Military and Naval Academies ought to possess. Soon after Col. Colt's death (Jan. 10, 1862), Mrs. Elizabeth Jarvis Colt, learning what had been done in the direction of her husband's wishes, authorized the use which has been made, of the material already collected, in the preparation of this treatise, and of the volume already published on Technical Schools in different countries, and of any more which might be collected and prepared at her expense, to illustrate any department of his plan of a scientific school at Hartford.

HENRY BARNARD.

Hartford, Conn., March, 1872.

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REMARKS ON FRENCH MILITARY EDUCATION.

The English Commissioners in their Report on "The best Mode of Reorganizing the [English] System of Training Officers for the Scientific Corps, together with an Account of Foreign and other Military Education," close with the following general remarks on French Military Education:—

The following summary may close our account of French Military Education.

1. The French army combines a considerable proportion of officers professionally educated, with others, who form the majority, whose claims to promotion consist in their service, proved ability, and conduct. One-third of the officers in the line, two-thirds of those in the scientific corps, and the whole of the staff, receive a careful professional education; the remainder are taken upon the recommendation of their superior officers, from the ranks. But it was stated to us expressly that such officers do not often rise above the rank of captain.

2. There are no junior military schools in France, and no military education commences earlier than sixteen. This is the very earliest age at which pupils can be received at the Polytechnic or at St. Cyr, and the *usual* age is later; whilst in the case of the Special Corps, strictly professional education does not begin till twenty or twenty-one. The best preparation for the military schools is found to be that *general* (in France chiefly *mathematical*) education which is supplied by the ordinary schools of the country, directed as these are and stimulated by the open examinations for admission to St. Cyr and the Polytechnic.

3. The professional education for commissions in the line is that given at the school of St. Cyr. A fair amount of mathematics is required at entrance, but the chief instruction given at the school is of a professional character. Active competition, however, which is the principle of all French military education, is kept up amongst young men educating for the line by the competitive entrance to the school, by the system of examinations pursued in it, and in particular, by the twenty-five or thirty places in the Staff School which are practically reserved for the best pupils on leaving.

4. In the Staff School itself the competitive system is acted upon; there are strict examinations, and the pupils are ranged in the order of merit on leaving the College.

5. The officers of artillery and engineers may be said to be in quite a peculiar position in France, owing to the high education given at the Polytechnic School. The consequence is, that the preparatory education of French artillery and engineer officers is of the highest scientific character. We have already spoken largely on this point, and need do no more than allude to it.

6. We may remark, that preparatory military education in France is mainly mathematical—at the Polytechnic almost wholly so. The literary and classical elements, which enter so largely into all education in England and Prussia, are in French military education very much thrown aside. Lectures in military history and literature are said, however, to succeed at St. Cyr.

7. The system of State foundations (*Bourses*) existing in the Polytechnic and St. Cyr, and affording a curious parallel to the military foundations in the Austrian schools, requires some notice. Every pupil, in both the Polytechnic and St. Cyr, who can prove poverty, is entitled to State support, either entire or partial. At the present time, not less than one-third of the students in each of these schools receive such maintenance. The system of civil *Bourses* is of old standing in France; most of these were destroyed at the Revolution. They were renewed and greatly devoted to military purposes by Napoleon. The extent to which they are given may seem excessive, but it must prove a powerful incentive and assistance to talent.

8. It has been remarked that there is comparatively little practical teaching in the School of Application for Artillery and Engineers at Metz. But a very extensive practical training is in fact supplied to these officers after they enter the service, remaining as they must do with the troops until promoted to the rank of second captain, and subsequently being employed in the arsenals, workshops, fortified places, &c.

9. The French have no "senior departments" for military education. In this respect their practice differs from that of England and Germany.

FRENCH MILITARY EDUCATION IN 1869.

The following remarks on French Military Education are from the Report of the English Military Education Commission submitted to Parliament, and printed in 1870:

1. The proportion of professionally educated officers in the line is greater now than in 1856, when it was stated by the Commissioners in their report to be one-third.

2. The professional education for commissions in the line is given by a two years' course at St. Cyr, admission to the school being dependent on competitive examination. Admission to the Artillery and Engineers is obtained through the Polytechnic, where young men intended for commissions in those arms receive a preparatory education of a highly scientific character, in common with candidates for many other branches of the public service. Admission to the school is obtained by competition, and the choice of services is

dependent on the results of another competitive examination at the end of the two years' course. Commissions are then obtained in the respective corps, and the young officers go for a further period of two years to the School of Application at Metz, there to receive their strictly professional instruction. The course of teaching at Metz is still mainly of a theoretical character, and the main portion of the practical training of the officers is deferred until they join their regiments. The Staff Corps is recruited entirely from the Staff School; a very small number of pupils from the Polytechnic have a claim to admission to the school, but the great majority of the students are admitted by competitive examination, open nominally to the sub-lieutenants of the army and to the best students of St. Cyr, but in practice almost entirely confined to the latter. The students join the school with commissions as officers; at the end of the two years' course they are definitely appointed to the Staff Corps in the order in which they stand in a competitive examination, but before being employed upon the staff they are sent to do duty for five years with the various arms.

3. The military schools in France are not, as in England and in Prussia, placed under the control of a special department. They are all under the immediate management of the Minister of War. There is, however, for each branch of the service in the French army a consulting committee (*comité consultatif*), or board of general officers, attached to the War Department, for the purpose of giving advice to the Minister, and in matters affecting the individual schools the Minister generally consults the *comité consultatif* of that branch of the service for which the school is specially preparatory.

4. Each school has its own *conseil d'instruction*, composed of officers and professors of the establishment, which exercises a general supervision over the course of instruction, and has the power of suggesting alterations or improvements in it. The financial business of the school is managed by another board *conseil d'administration*); and there is generally also a similar board (*conseil de discipline*), which exercises more or less authority in questions of discipline. The effect of this arrangement is to give the various officers and professors of each school to some extent a voice in the general management of the institution.

5. The staff of officers and instructors employed appears, in most cases, very large in proportion to the number of the students; 48 for 270 in the Polytechnic; 33 for 170 in the school at Metz; 62 for 600 in St. Cyr, &c.

Though there is in all the schools a military staff separate from the staff of professors and instructors, and more especially charged with the maintenance of discipline, the line of separation between the two bodies is not, except at the Polytechnic, so distinctly drawn as in the English military schools. The military professors exercise disciplinary powers; while, on the other hand, the members of the strictly military staff in almost all cases take some part in instruction. The latter appear to be more utilized for this purpose than is the case either at Sandhurst or Woolwich.

6. Considerable care is exercised in the appointment of professors; at the Polytechnic the candidates are selected by the *Conseil de Perfectionnement;* at La Flèche they are recommended to the Minister of War by the Minister of Public Instruction; at the Staff School and St. Cyr the appointments are thrown open to competition.

7. The discipline maintained at all the schools is of a very strict nature;

except for the youngest pupils at La Flèche it is entirely military; the punishments are similar to those inflicted in the army, and even include imprisonment. The maintenance of discipline is considerably facilitated by the fact that the pupils at most of the schools are actually subject to military law; and those of St. Cyr, if dismissed from the school, are sent into the ranks as private soldiers. There appears, however, in all the schools to be an absence of the moral control over the young men which is exercised in the Prussian schools. The Commandant of each school has very extensive powers in regard to discipline, but in no case has he authority to dismiss a student from the school without the sanction of the Minister of War.

8. The principle carried out in France is that special military education should not be begun until a comparatively late age, and should be founded upon a groundwork of good general education in civil schools. The only approach to a junior military school in France is that of La Flèche, and this is mainly a charitable institution; the pupils, it is true, learn drill, but beyond this no special military instruction is given them. The course of study is the same as that at the *Lycées* or ordinary civil schools, and the pupils are under no obligation to enter the military service. Nor can the Polytechnic be called an exclusively military school; even those who enter the Artillery and Engineers from it have their education in common with civilians at the very least until the age of 18, and in the great majority of cases their strictly professional instruction at Metz does not begin till 20 or 21. The very earliest age at which a special military education commences in France is 17, which is the age of admission to St. Cyr, and comparatively few enter the school before 18 or 19. The knowledge required for admission to St. Cyr is entirely such as is acquired at civil schools, and so much importance is attached to a good general education that the degree of either *bachelier ès sciences* or *bachelier ès lettres* is made a necessary qualification for admission to the examination, while the possession of both degrees gives considerable advantage to a candidate. The principle of deferring the commencement of special instruction has even received extension since 1856; the age of admission to St. Cyr, which was then 16, has been now increased to 17, and the junior school of La Flèche has been made even less military in its character than it was at that time.

9. When a professional education has once commenced, the principle appears to be that it should be almost entirely confined to subjects which have a practical bearing on military duties. Mathematics, as a subject by themselves, do not form part of the ordinary course of instruction at any of the special schools. The previous course at the Polytechnic secures of course very high mathematical attainments in the candidates for the Artillery and Engineers who enter Metz; but at Metz itself the study of mathematics is no longer continued. In the same way at the Staff School a knowledge of mathematics as far as trigonometry is required for admission, and their practical applications to operations of surveying enter into the school course; but no part of the time spent at the school is devoted to mere theoretical instruction in pure mathematics; yet the officers of the Staff Corps are intrusted with the execution of those scientific surveys which in our service are in the hands of the Engineers.

St. Cyr offers to some extent an exception to the rule that the course of study at the special schools should be of an exclusively professional character, as the instruction given there during the first year is partly of a general nature, embracing history and literature. This, however, arises from the fact that the students from the *Lycées* generally show a deficiency in the more literary subjects of a liberal education, and a portion of the time at the school is therefore spent in completing and improving their general acquirements. A knowledge of arithmetic, algebra, and plane trigonometry is required as a qualification for admission, but beyond a very beief revision of these subjects, and a voluntary course for candidates for the Staff Corps, mathematics are not taught at the school. It would seem indeed that, except in the case of candidates for admission to the Artillery and Engineers, mathematics do not hold so prominent a position in French military education as is generally supposed in England to be the case. For staff and regimental officers the main requisite demanded seems to be a practical knowledge of trigonometry as required for surveying.

10. Much time is devoted in all the French schools to drawing in its various branches; some hours daily are invariably given up to the subject; indeed the time spent upon purely geometrical drawing appears almost to be excessive. The great importance attached to the drawing of *machinery* is a peculiar feature in all the schools. Landscape drawing is one of the regular subjects taught to candidates both for the line and the Staff Corps.

The theoretical instruction given at every school is supplemented by visits to numerous military establishments, manufacturing departments, and fortresses. This is also a feature in the system of military education in Prussia; in both countries it seems to be thought desirable to afford young officers a practical insight into the working of the various establishments connected with the army. In the case of officers of the Artillery and Engineers it appears in France to be made a special object to cultivate a mechanical genius, and to secure a thorough acquaintance with manufacturing departments with which their professional duties bring them into contact.

Military law and administration (comprising financial and other regulations connected with the army), and drill, riding, and fencing in the way of practical exercises, form part of the education of officers of all branches of the service; in drill, lectures explanatory of the drill-book are invariably given in addition to the practical instruction.

11. The system of instruction in all the French military schools is more or less that of the Polytechnic. Lectures attended by large numbers, enforced study of fixed subjects, the execution of all work under close supervision of the instrutors, and frequent periodical examinations, are everywhere found. Active competition is the leading feature of the system; the students are perpetually being "kept up to the mark." A fixed period of two years is in all cases assigned to the course of study; the course can not be completed in a shorter time, and the regulated period can not (unless under quite exceptional circumstances) be exceeded.

It seems also to be thought that, as a necessary consequence of the strictly competitive system, the subjects upon which the competition depends should be exactly the same for every student. No choice of studies is allowed; those which enter into the examination are equally obligatory for all. The only exception to this rule is at St. Cyr, where in languages a choice between German and English is given.

No pecuniary rewards are offered to the students at any of the schools. The bestowal of the numerous *bourses* which are granted to those admitted to the

Polytechnic and St. Cyr is regulated entirely by the poverty of the candidates, without any regard to their ability.

12. The education of officers in France is entirely concluded before any regimental duty has been done. The French system is in this respect the exact opposite of that pursued in Prussia, where no professional instruction, as a rule, is given until a certain amount of service with the troops has been performed. There are in France no establishments for the instruction of officers of some years' service, like the Staff College in England, or the Artillery and Engineer School and the War Academy in Prussia.

13. The chief changes which have taken place in the military schools of France since the publication of the Report of the Commissioners of 1856 may be summarized as follows:—

(*a*) The modifications in the course of instruction at the Polytechnic; the abridgement of the studies previously pursued; and the slightly increased importance now attached to literary subjects.

(*b*.) At Metz, the introduction of an examination at the end of the first years' course of study.

(*c*) At St. Cyr, the alteration of the age for admission to the school from 16 to 17; the extension of the subjects of the entrance examination; the modifications in the course of instruction, and the postponement of the commencement of strictly military studies almost entirely until the second year; the introduction of a stricter system of discipline, combined with additional encouragements to good conduct and industry; and the increased advantages offered with the view of attracting to the school a higher class of professors and officers.

(*d*.) At La Flèche, the complete reorganization of the institution with the object of more closely assimilating its general arrangements to those of a purely civil school.

(*e*.) At the Staff School some modifications in the course of study and in the mode of admission to the school have been made; but the most important alterations are those adopted in July 1869, by which the number of students admitted annually to the school is increased considerably beyond the number of vacancies likely to occur in the Staff Corps, and the novel principle is introduced that admission to the school does not carry with it the certainty of permanent employment on the staff.

It may be added that there seems a tendency to diminish the importance of mathematics as an element of preparatory military education, and to attach slightly more weight to studies of a literary character. This is more particularly seen at St. Cyr and at La Flèche, and to a less extent at the Polytechnic. There is also a growing disposition to increase, in the case of the cavalry and infantry, the proportion of officers who have received a professional education.

EXPENSE OF MILITARY SCHOOLS IN 1869.

Name of School.	Sums charged to the Schools Estimate.	Military pay charged to other Estimates.	Total.	Cost to the State.‡	Each pupil.
	Frs.	*Frs.*	*Frs.*	*Frs.*	£.
Polytechnic	719,673	85,515	805,188	508,188	78
Artil'y and Eng'er school at Metz,	99,500	416,350 *	515,850	515,850	50
St. Cyr	1,348,792	15 000	1,363,792	741,292	49
Staff school,	99,000	214,870 *	313,870	313,870	168
La Flèche,	539,868	15,000	554,868	457,868	45
Medical school,	659,300	†	659,300	......	...
Cavalry school at Saumur	227,000	18,500	245,500	......	...
Gymnastics, musketry schools,	36,270	"	36,270	......	...
Regimental schools,	173,600	"	173,600	......	...
Total,	3,903,003	765,235	4,068,238	2,597,068	390

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* These sums include the pay of the officer students at these establishments, amounting to 288,000 frs. at Metz, and 103,000 frs. at the Staff School.

† The estimate for the Medical School appears to be exclusive of the pay of all military medical officers employed at the school, but the amount of this additional sum is not stated.

‡ For 1,590 pupils, who repaid 956,500 francs.

ORGANIZATION AND CONDITION IN 1869.

The organization of the school, which is fixed by a Decree dated Nov. 30th, 1863, is of a military character. There is a staff of military officers in addition to, and quite separate from, the staff employed in the duties of instruction. The pupils wear uniform, which, however, is more civil than military in appearance. They are formed into four companies which together constitute a battalion; and, although they are not actually subject to the penal code of the army, the discipline maintained and the punishments inflicted are entirely military in character.

The military establishment remains exactly as it was in 1856, and consists of:

The Commandant, a General Officer, usually of the Artillery or the Engineers, at present a General of Artillery.

A Second Commandant, a colonel or lieutenant-colonel, chosen from among the former pupils of the school; at present a colonel of Engineers.

Three captains of Artillery and three captains of Engineers, as inspectors of studies, chosen also from former pupils of the school.

Six adjutants (*adjudants*), non-commissioned officers, usually such as have been recommended for promotion.

Slight changes have been made in the civil establishment; it now consists of:—

1. A Director of Studies, at present a colonel of Engineers.

2. Seventeen professors,* (two additional professors for history) seventeen *Répétiteurs* and assistant *Répétiteurs*, and five drawing masters. Of the 17 Professors, two are at present officers of Engineers, and one an officer of Artillery; the remainder are civilians, of whom three are members of the Academy of Sciences.

3. Five examiners for admission, and five for conducting the examinations at the school. All of these at present are civilians.

4. An administrative staff consisting of a treasurer, librarian, &c.; and a medical staff.

The general control or supervision of the school is vested, under the War Department, in four great boards or councils, viz.:—

1. A Board of Administration, composed of the Commandant, the Second Commandant, the Director of Studies, two professors, two captains of the military staff, and two members of the administrative staff. This board has the superintendence of all the financial business, and all the minutiæ of the internal administration of the school.

2. A Board of Discipline, consisting of the Second Commandant, the Director of Studies, three captains of the Military Staff, and one major of the army, selected from former pupils of the school.† The duty of this board is to decide upon cases of misconduct.

3. A Board of Instruction, whose members are, the Commandant, the Second Commandant, the Director of Studies, the Examiners of Students, the Professors, and two captains of the Military Staff; and whose chief duty is to make recommendations relating to ameliorations in the studies and the programmes of admission and of instruction in the school to—

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* In 1856 there were only 15 professors; there are now two additional professors for history, the dy of which has been recently introduced at the school.

† Formerly two professors of the school were also members of the Council of Discipline, but professors have now no voice in matters of discipline.

4. A Board of Improvement (*Conseil de Perfectionnement*), charged with the general control of the studies, and formed of:—

The Commandant, president,
The Second Commandant,
The Director of Studies,
Two delegates from the Naval Department,
Two delegates from the Department of Public Works,
One delegate from the Home or Finance Department,
Three delegates from the War Department,
Two members of the Academy of Sciences,
Two examiners of students,
Three professors of the school.

The delegates from the public departments are appointed by the respective ministers; the members of the Academy, the examiners, and the professors are selected by the Minister of War. The real management of the school, so far as the course of instruction is concerned, is in the hands of the *Conseil de Perfectionnement;* it will be seen that of the 18 members composing it more than half are entirely independent of the school, and are men of eminence in the various public services for which the instruction at the Polytechnic is preparatory. One of the chief duties of the Council is to see that the studies form a good preparation for those of the more special schools (*Ecoles d'Application*) for the civil and military services; and the eminent character of its members gives great weight to the recommendations they make to the Minister of War.

The annual expenses of the school, as extracted from the Budget for 1869, are as follows:—

		Francs.
Pay of staff, professors, &c.,		331,850
Instruction, maintenance, examination of candidates, clothing, books, &c.,		321,073
	Francs.	
Outfits for 30 new pupils at 600 francs each	18,000	
Allowances (*premières mises*) to 25 exhibitioners on admission to the military services at 750 fr. each	18,750	
		36,750
Maintenance and repair of buildings,		30,000
Total sum charged in the schools estimate,		719,673
Add regimental pay of 28 officers and non-commissioned officers employed at the school,		85,515
Total expenditure,		805,188
Deduct repayments from pupils,		237,000
Cost to the State,		568,188

Or about 22,720*l.*

The chief changes that have been made in regard to the course of instruction since 1856, may be summarized as follows:

1. The more elementary portions of chemistry and physics which are required in the entrance examination, but which were formerly repeated at the school, have been omitted. The course of instruction in these subjects is now confined to the more advanced portions which do not enter into the entrance examination.

2. The mathematical courses have in some points been slightly curtailed, and the number of lectures in French literature and German have been diminished. By the modifications thus made in the programmes, it has been found possible to shorten the whole course of study and to increase the length of the vacations.

3. The subject of "Military Art," which formerly entered into the final exam-

ination is no longer taken into consideration in determining the order of merit of the pupils. In this respect the course of instruction may be said to have even less of a military character than formerly. Topographical drawing is the single military subject which has any influence on the final classification of the pupils, and this only to a very slight extent.

4. History has been introduced as a subject of instruction. This change was made in 1862. The course comprises general history, both ancient and modern, but more especially the history of France in modern times. The introduction of this subject appears to have arisen partly from a feeling that an acquaintance with history was a necessary element of a liberal education, and partly from a wish to meet, to some extent, an objection often made to the Polytechnic course of instruction, that it was too deficient in studies of a literary character. History, however, like military art, is evidently still regarded as a subject of only secondary importance and has no influence on the final classification.

5. A diminution has been made in the number of examinations during the course, by the suppression of one of the half-yearly examinations by the professors (*interrogations générales*, as distinct from the *interrogations particulières*) in each year. Further reference will be made to this point when speaking of the examinations at the school.

6. The importance of written exercises in determining the respective merits of the pupils has been decreased, apparently from the difficulty of establishing a security that such compositions were the unaided work of the individual.

The following table shows the present course of instruction during the two years, and the alterations which have been made in the number of lectures in each subject since 1856:—

Subject.—First Year's Course. *Lectures in*—	1868.	1856.
Analysis { Differential calculus,	25	28
Analysis { Integral calculus,	18	20
Descriptive geometry and geometrical drawing,	32	38
Mechanics and machinery,	40	40
Physics, comprising heat and electricity,	30	34
Chemistry:—The metals,	30	38
Astronomy and geodesy,	30	35
French composition and literature,	25	30
History,	25	0*
German	25	30
Figure and landscape drawing,	48	50
Second Year's Course.		
Analysis:—Integral calculus,	32	32
Stereotomy:—Geometrical drawing of constructions in timber and masonry,	28	32
Mechanics:—Dynamics, hydrostatics, and machinery,	40	42
Physics:—Acoustics, optics, and heat,	30	36
Chemistry:—Continuation of the metals and organic chemistry,	30	38
Architecture and buildings, construction of roads, canals, and railways,	40	40
French composition and literature,	25	30
History,	25	0*
German,	25	30
Military art,	20	20
Topography,	2	10
Figure and landscape drawing,	48	48

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* Introduced in 1862.

In connection with several of the courses, such as descriptive geometry, stereotomy, machinery, and architecture, much drawing is done by the pupils; hand sketches are taken of the diagrams shown in the lecture-room, and finished drawings are afterwards executed in the *salles d'étude*. In addition to this, 30 attendances of two or three hours each, distributed over the two years, are especially devoted to drawing more elaborate plans and elevations of architectural constructions and machinery. The practical applications of the theoretical instruction are limited to manipulations in the laboratory in connection with the course of lectures on chemistry and physics. Towards the close of the second year the pupils are also taken to visit some of the large manufacturing establishments in Paris, in order to gain a practical acquaintance with machinery.

All the subjects taught at the school are obligatory, but history and military art, as already stated, have no influence in determining the order of merit of the pupils in the final result.

The only instruction in practical military exercises, which is compulsory upon all, is that in drill. The pupils are exercised under arms in company drill, and are also occasionally drilled as a battalion; but very little importance is attached to this point—the only really military portion of their training. Drill goes on only for about three months in each year during the spring and summer, and even during this brief period only takes place about twice a week. By the regulations of the school the pupils should be exercised in musketry practice, but although they are armed with the Chassepot rifle this regulation is never carried out. Instruction is given in fencing and gymnastics, but attendance at both is voluntary, and scarcely more than half the pupils take advantage of it. Neither riding nor swimming are taught at the school.

The school year commences about the 1st of November, and terminates about the first of August. Some seven months of the year are given up to lectures and the ordinary routine of study; about two months are occupied with the annual examinations and private preparation for them; the remaining three months—August, September, and October—are the vacation. In addition to this long vacation, from eight to twelve days are allowed after the periodical examination, which takes place near the end of February, at the close of the first portion of each year's study.

One peculiarity in the arrangements of the school is that the subjects of each year's course are not all studied simultaneously. The lectures in the main subjects of instruction—those which, as a rule, present the most difficulty—are divided into courses which continue only during a certain portion of each year. Thus in the junior division, analysis and descriptive geometry are the mathematical subjects studied during the first three months, or three months and a half. The course in them is then concluded; an examination by the professors (*interrogation générale*) is held in these subjects, and they are laid aside for the remainder of the year, though they enter into the examination at the close of the year. Their place is then taken by a course of lectures in mechanics and geodesy. Similarly in the second year, analysis and mechanics are the subjects of the first course of lectures, at the termination of which there is an examination; and for the remainder of the year no further lectures in them are given, stereotomy and military art taking their place.

The subjects involving as a rule less difficulty—such as history, French literature, German, and drawing—are spread over the whole year, forming generally the evenings' occupation.

PRUSSIAN MILITARY EDUCATION IN 1869–70.

CHANGES SINCE 1856.

THE following remarks are gathered from the "Report of the Military Education Commission presented to both Houses of Parliament," in 1870, in continuation of the Report submitted in 1856, on the Systems of Military Education in France, and Prussia.

1. The chief alterations that have taken place in the system of military education in Prussia since 1856, are as follows:—

(*a.*) All the educational establishments have been very much enlarged, owing to the increase in the army which has taken place since 1866.

(*b.*) The educational requirements for a commission remain in principle the same as they were—the double examination for the rank of officer, and the exaction from every candidate for a commission of proof of both general and professional knowledge being still the peculiar feature of Prussian military education. There has been, however, a constant tendency to raise the standard of the preliminary examination in subjects of general knowledge, and to insist more strongly upon a sound liberal education as a condition of obtaining a commission. The number of *Abiturienten*, or men who have passed through the complete course at a public school, entering the army annually is now four times as great as it was in 1856, and there is the strongest wish still further to increase their number.

(*c.*) The Cadet Schools in their general character are unaltered; the introduction of the peculiar class of the Ober-prima in the Upper Cadet School at Berlin is the most important modification made in their organization. The proportion of officers supplied by the Cadet Schools continues much the same as it was in 1856. The feeling in the army, however, against preparatory military schools appears to be increasing; a strong opinion is entertained as to the narrowing effects upon the mind of exclusive class education; and a preference is very generally exhibited for officers who have had the ordinary education of civil schools. At the War Schools (*Dinssi, on Schools in* 1856), the Artillery and Engineer School, and the War Academy (*Staff School in* 1856), a decided opinion was expressed as to the intellectual superiority of the *Abiturienten* over those who have been educated in the Cadet Corps.

(*d.*) The arrangements for the professional instruction of officers of corps have been very much altered. These officers now have their education up to the time of obtaining their commissions in common with candidates for the line: their *special* instruction does not commence at the Artillery and Engineer School until they have been in the service three or four years. For the Artillery, the course at this school has been reduced to one year, and made strictly practical in character.

(*e.*) The course of instruction at the War Academy, or Senior Department, has been considerably modified; though still comprising many subjects of an entirely unprofessional character, their number has been reduced; the attention of the students is more concentrated upon military studies than formerly, and a larger amount of time is devoted to practical work. In short, the object has been to render the instruction less purely theoretical than it formerly was.

(*f.*) The most important change, however, which has been made is in regard to the War Schools—the Schools at which officers of all arms receive their *professional* instruction. Since 1856 they have been entirely re-organized, and placed under the direct control of the Central Educational Department; a much higher class of teachers are employed; the character of the instruction has been greatly improved; and attendance at one of these schools is, with rare exceptions, made compulsory upon every one before obtaining a commission. These schools hold a most important position in the Prussian system of military education, and the greatest pains are bestowed on making them answer the purpose for which they are intended—that of giving a thoroughly practical instruction in military subjects to candidates for commissions. The improvements made in the War Schools show the greatly increased importance attached of late years in Prussia to the professional instruction of officers.

2. However different the French and Prussian systems may be in some respects, they both agree in this—that no attempt is made to give a special military education at an early age, that a general education is made the ground-work of the professional training, and that at least up to the age of 17 or 18 the future officer receives the same kind of education as the civilian, and in the great majority of cases receives it at the ordinary schools of the country. In Austria, also, the same principle seems now to have been adopted. The cadet schools in Prussia are no exception to the rule, for the instruction at them, except in the two upper classes at Berlin, is the same as at civil schools. The principle of deferring military education to a comparatively late age is, indeed, in Prussia carried even to a greater extent than in France, for all professional instruction is postponed until after the service has been entered, and regimental duty been performed for nearly a year. The few who enter the army from the Ober-prima and Selecta of the Cadet Corps (not amounting to 70 each year) are the only individuals who receive any military instruction before joining the service, and in their case this special instruction does not commence until the age of 17. So strongly is this principle insisted upon, that even for the artillery and engineers there is no preparatory military education, and the special instruction of the officers of these arms is not given until after they have been some years in the service. The idea in Prussia is that a young man can derive no advantage from studying the *theory* of the military profession until he has learnt the *practice* of it. "What use can it be," it was said, "to talk to a lad of the principles of tactics, when he does not even know the movements of a battalion, and perhaps has never seen one on parade?"

3. After, however, entering the service *all* the officers of the Prussian army receive a careful professional instruction—that given at the War Schools. The course is of an essentially practical character, comprising only strictly military subjects, and excluding such studies as mathematics and even languages.

4. The officers of the staff do not necessarily receive any special training previous to their appointment; but in Prussia this is of less importance, as from the professional education which every officer has had, those appointed to the staff, even if they have not passed through the Senior Department, must at least be acquainted with field sketching and military regulations, and know something of fortifications and artillery. Moreover, after appointment, means are taken in the "staff expeditions" which occur annually, to instruct them in their practical duties, and (as is the case also in France with the officers of the Staff Corps) to insure their keeping up the knowledge of field sketching and reconnaissance which they had previously acquired.

5. The connection which exists in Prussia between the military system and the general education of the country is remarkable. *Portefée-fahnrich*, exami-

nations are not only based on the course of instruction at civil schools, but have been also used as a means of raising the character of the education given at these schools. On the one hand, the advantages offered to *Abiturienten* and to those who have been at a university, indicate a wish to encourage men of liberal education to enter the army as officers; on the other hand, by making exemption from the ordinary period of compulsory service in the ranks dependent (among other conditions) on educational attainments, the military system has been employed as an engine for stimulating education among the middle classes.

6. The general management of military education is vested in a single officer, the Inspector-General. He is assisted by two Boards or Councils, the Board of Studies in matters connected with the general system of instruction, and the Supreme Examination Board in regard to the examinations and qualifications for commissions. The system of education has been still further centralized since 1856, especially in the case of the War Schools; and much of the progress that has been made is ascribed to the unity now given to the whole system of instruction. At the same time each of the educational institutions has its own Board of Studies, similar to the *conseils d'instruction*, at the French schools, who are charged with the general control of the course of study and with the duty of making suggestions for its improvement. Several of the professors, both civil and military, are always members of this Board; so that the benefit of their practical experience is secured, and the control of the instruction is never left entirely in the hands of one man, nor even exclusively of military men. The introduction of the civilian element into these Boards is deserving of notice; not merely the professors of the schools, but eminent men connected with the University of Berlin are employed upon them, and have a voice in determining the system of military education.

7. In discipline the heads of the various schools are almost entirely supreme. At the War Schools the young men are subject to military law, being already in the army; at the Cadet Schools this is not the case, but the discipline is strictly military in character. At both establishments the regulations are extremely stringent, and the slightest irregularity entails punishment. But the importance attached to the exercise of moral influence over the pupils, the personal interest taken in them, and the kindly relations existing between them and the officers, make the system of discipline much less rigidly military than it is at the French schools. Both at the War Schools and the Cadet House, specific punishments are attached to idleness.

8. In the appointment of the heads of the various schools and of the subordinate officers employed at them, great attention seems to be paid to selecting individuals fitted for the posts both by educational experience and by personal qualities. There appears to be rather a general opinion that the instructors at most of the schools are underpaid, and that this, combined with the preference frequently given to active military life, prevents the posts being much sought after by the ablest officers. On the other hand, however, selection for such appointments is always regarded as a distinction; and in the Prussian army mere honorary distinctions, altogether irrespective of material advantages, are held in much higher estimation than is probably the case in any other service.

9. The most marked point of contrast between the French and Prussian systems of military education consists in the thoroughly competitive character

of the former. In Prussia the principle of competition, though to a certain extent recognized, is little applied in practice, and never perhaps fully and strictly carried out. For promotion to the highest class (the Selecta) of the Berlin Cadet house there is considerable competition among the pupils, and admission to the War Academy is obtained by competitive examination open to all the officers of the army; but even in these two cases personal and other considerations come more or less into play, and the rewards can not be said to be thrown open to pure competition. All the other military examinations are simply qualifying, and there is no attempt to afford the stimulus of publishing a list of the candidates arranged in order of merit. In fact the term "competitive examination" scarcely seems to be understood in Prussia. The pecuniary assistance afforded by the State for the education of boys in the Cadet Schools is dependent solely on the circumstances and services of the father, not on the abilities of the candidate himself.

10. The objections expressed to the further introduction of a competitive system appear to be universally entertained in the Prussian army. The object in Prussia seems to be, not to attempt to establish an accurate *comparison* of the educational attainments of a number of individuals, but to form a *general estimate* of the abilities, character, and military capacity of each. The army generally are not considered to be losers by the rejection of the competitive principle; the system of inspections and of reports from inspecting officers is so elaborate, and so many checks are provided, that the character and abilities of individual officers are well known; and appointments, certainly as a general rule, are said to be made on the ground of real merit.

11. There appears to be less strictness in enforcing the regulations connected with military education in Prussia than in France. The regulations themselves are very stringent, but exceptions are constantly sanctioned—for instance, in the length of time which a pupil is permitted to remain in the same class of the Cadet Schools, in the number of failures allowed in the various examinations, &c.

12. The very great care bestowed upon the method of instruction at all the Prussian military schools, is extremely remarkable. Individual instructors are not left to follow out their own ideas of teaching, but careful regulations are issued for their guidance by the Inspector-General of Education, to which all are required strictly to conform. The system of small classes in striking contrast to the French plan of lectures to large numbers, is a remarkable instance of the anxiety to devote attention to individual students, and to adapt the instruction to varieties of ability. But the most remarkable feature of the system of teaching is the care bestowed upon the higher objects of education, upon forming and disciplining the mind and encouraging habits of reflection. The regulations for the instructors at the various schools over and over again assert that the great object to be kept in view is, not merely to impart a certain amount of positive knowledge, but to develope the intellectual faculties and to cultivate powers of thought and reasoning. The teachers are warned to avoid minute details and barren facts, which merely burden the memory and are soon forgotten, and to direct attention to broad principles, which will lay the foundation for further individual study in after life. With the same object in view, the examination questions are calculated, not merely to serve as an exercise of the memory, but to test an intelligent acquaintance with a subject, and the power of turning knowledge to a useful purpose.

PRUSSIAN STAFF IN 1869.*

The Prussian Staff (*Generalstab*) which has been completely reorganized since the war of 1866, subserves the double purpose of providing staff officers for the duties of the active army, and of collecting and arranging the statistical, geographical, and historical information necessary for the operations of war; further, it is the school in which young officers temporarily detached from their regiments, after a course of instruction at the Military Academy, have their qualifications tested before admittance to this branch of the army, and the principal office of the trigonometrical survey of the Eastern Provinces.

The head-quarters of this organization are at Berlin, where a large building is appropriated to the various offices and departments, in which the chief of the staff, General von Moltke, resides. It has two establishments:—

1. The peace establishment, divided into—
    A. Chief *état*, subdivided into
        (*a.*) The staff of the commands.
        (*b.*) The general staff, or *grosser Generalstab.*
    B. The accessory *état*, *neben Etat.*
2. The war establishment.

The staff of the commands is so complete during peace as to require a very unimportant augmentation, and that chiefly in the lower grades, on the outbreak of war; the framework not only exists, but the officers comprising it are already acquainted with the generals under whom they serve, and with the officers and troops with whom they have to communicate.

At the head-quarters of each corps there are: a chief of the staff—sometimes a Major-General, more frequently a Colonel, exceptionally a Lieutenant-Colonel—a field officer, and a captain; at that of each division a field officer; there is also a chief of the staff with the General Inspection of the artillery. The subordinate duties are performed by the aides-de-camp, of whom there are two at the head-quarters of each corps, and one with each division and brigade; but these officers are not included in the establishments of the general staff, and wear the uniform of their respective regiments; are in no sense of the word aides-de-camp as existing in the English army; they bear the designation of *Adjutant*, and may more properly be compared to our Deputy Assistants and Brigade Majors: indeed the solitary Adjutant is the only assistant to the Major-General in the performance of the brigade duties. In the time of war the staff is further supplemented by *Ordonanz Offiziere* attached as aids to the general officers in command.

The *Grosser Generalstab* includes the officers of the staff who are not employed with the commands, and is stationed in Berlin under the personal direction of the chief of the staff. The *Neben* or *accessory Etat* includes the officers employed in the strictly scientific work allotted to this department.

The combined staff at head-quarters is subdivided as follows:

a. The three Sections;
b. The section for military history;
c. Trigonometrical section;
d. Topographical section;
e. Geographical-statistical section;
f. The map-room.

The three sections have the object of collecting and arranging information respecting the home and foreign armies. The home subjects to be treated are the means and warlike institutions of the State, its fortresses, magazines, ports, inland communications, the organization, recruiting, mobilization, armament, equipment, and drill of the army. The warlike systems of foreign nations, the strength and organization of their armies, regulations, and drill, the distribution of the troops, state of preparation for active service, and their systems of reinforcement and reserves, are the further subjects of inquiry. For these purposes the work is divided as follows, according to the division into—

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* By Col. Beauchamp Walker, C. B. 1869.

1st *Section.*—Austria, Russia, Sweden and Norway, Denmark, Turkish Empire, Greece, Asia.

2d *Section.*—Prussia and North Germany, South Germany, Italy, Switzerland.

3d *Section.*—France, Great Britain, Belgium, the Netherlands, Spain, Portugal, America.

The number of officers actually belonging to the two categories of principal and accessory establishments of the staff is 115, of whom 94 belong to the first, and 21 to the second named branch. In the first there are 17 chiefs of the staff—viz., 13 with the army corps, one with the General Inspection of the artillery, and three at the head of the three sections—47 field officers, and 29 captains. In the accessory establishment there are four chiefs, five field officers, and 12 captains.

The office establishment, inclusive of the Engineer geographers—who are non-commissioned officers of the Artillery or Engineers serving permanently in the trigonometrical section in place of the officers who were till recently employed temporarily in this office, and of whom there are at present 10—consists of 18 permanent officials, not including a head messenger, two chancery servants, two house servants, and a porter.

The supernumeraries comprise 40 officers attached for a year, 20 for duty with the staff generally, the remainder for surveying; 34 surveyors who are only employed during about five months in each year, and 41 draughtsmen.

The pay of the permanent staff amounts to 206,150 thalers, or 30,922*l.* 10*s.*, the material expenses being 62,250 thalers, or 9,339*l.* 10*s.* Of this latter sum about two-thirds is required for office and surveying expenses; 17,000 thalers, or 2,550*l.*, are allowed for the annual journeys of instruction undertaken by the staff, and 3,000 thalers, or 450*l.*, for allowances to officers traveling for scientific or professional purposes.

The actual sum disbursed for office and surveying purposes is 47,450 thalers, or 7,417*l.* 10*s.*, of which 7,000 thalers, or 1,050*l.*, are recovered by the sale of maps and works published by the staff, 2,000 thalers, or 300*l.*, being derived from the profits of the bi-weekly military paper, "*Militair Wochen Blatt.*"

Besides the duties already mentioned, the staff at head-quarters undertakes:

1. The training of officers for staff purposes. To this end young officers who have passed the prescribed three years at the Military Academy, "*Kriegs Akademie*," are attached for a year to the different sections, where they are required to draw up reports on strategical and tactical questions, critical reports on the military events of past eras, descriptions of the ground embraced in military operations, and of the military organization of foreign countries. These essays, when of special value, are laid before the chief of the staff.

2. The preparation of printed reports on foreign armies, which are distributed to the staff officers employed elsewhere.

3. The contribution of papers on professional subjects to the "*Militair Wochen Blatt*," or military paper.

This publication, which appears twice a week, was formerly edited in the office of the staff, but has lately been in the hands of a responsible editor, a colonel on half-pay, who stands, however, in intimate connection with the office. The contribution required from the staff is twenty sheets of printed matter annually from the various departments, a much larger amount being furnished, from which the chief selects what he considers suitable for publication.

4. Military tours of instruction, for which a sum of 2,550*l.* is annually granted.

All the officers who can be spared from the duties of the office take part in these tours, as also a few staff officers called in from the commands, and a selection from the commanders of regiments.

They are also made on a smaller scale by the staff of the Corps, augmented by regimental officers attached for instruction, under the superintendence of the respective chiefs of the staff.

For the tour superintended by General Von Moltke, the theatre of operations and certain conditions likely to influence them are indicated, a supposed strength is given to two opposing armies, their depots and means of reinforcement are clearly laid down, and the influence likely to be exerted by the movements of other armies or bodies of troops on their flanks are taken into calculation. According to these data the senior officers present make their plans of manœuvre, employing their juniors in the preparation of all the subordinate arrangements, the movements of the troops, the selection of positions for attack or defense, the arrangements for supply, and for retaining a communication with the base. All these measures are carried out on the spot, and daily reports are made to the superintending officer, which, when necessary, are accompanied by such rough sketches as are usual during the progress of a campaign.

From these materials he is enabled to form an idea in what degree the spirit of the operations has been grasped by the directing officers, and in how far their juniors are instructed in the details of duties which they may hereafter be called on to perform.

5. A large share in the military education of the army generally, by taking part in the lectures given in the various educational establishments, and by acting as members of the commissions of examination and of studies.

6. Officers of the head-quarter staff are also detached to attend the annual corps manœuvres, those taking place in foreign countries, or the active campaigns of friendly allied nations.

Of the three sections into which the head-quarter staff is divided, the railway department forms part of the second of these sections, the chief of which selects an officer to preside over and superintend the working of it, and gather materials on inland and foreign railway communication. Certain officers are attached permanently, similarly, in fact, to those belonging to the sections of the accessory establishment, who have not only to make themselves theoretically masters of their subject, but by traveling on the various lines acquire practical acquaintance with the working of railway transport in all its phases. With a view to diffusing this knowledge as largely as possible, all officers of the staff have since 1867 been required to attend a six weeks' course of study with this branch.

The section of military history has charge of the war archives of the Prussian army and of the library of the general staff, for additions to which latter a sum of 1,100 thalers, or 165*l.*, annually, is voted.

The staff of the section is occupied not only with subjects of recent and i mediate interest, but with the study and arrangement of materials belongi and relating to the wars of earlier date, of which there is a valuable collectic consisting of reports, day-books, plans, and other documents, many of the legacies of the prominent actors in the scenes to which they relate. The libra is well supplied with the most important works in all languages on milita history, tactics, geography, and military science.

The trigonometrical and topographical sections stand in intimate connecti with each other. Since 1865 the former is charged with the survey of t Eastern Provinces, a work which it is hoped will be concluded in ten yea under the direction of the chief of the staff.

Under the present organization there are always forty young officers attach to the head-quarter staff, but only for one year, their absence from regiment duty having proved detrimental, while the current work is naturally bett executed when carried out by permanent *employés*, thus avoiding the interru tion caused by constant reliefs.

The geographical-statistical is a new section, the necessity for which aro from the overcrowding of other branches, particularly of the map-room. much material had accumulated in the other branches that it was found nece sary to establish a section in which the scattered information could be co densed in the form of statistics. To this end the former geographical su section was altered into its present form with an enlarged sphere of work, a the charge of the collection of maps was transferred to it from the map-roo which had become so much overcrowded with old materials as to have neith room nor time for the ordinary business of taking charge of the current surve and of the maps and charts intended for distribution to the army.

With a view to facilitating the collection of the best geographical and stati tical materials all the sections are placed *en rapport* with the new section, which they are required to forward all special material coming under notic and all books or pamphlets which contain geographical or statistical inform tion. This section stands also in constant communication with the civil stati tical bureau.

The duties of the "*Plankammer*" (map-room) are now restricted to th care of the topographical instruments of the original surveys of the topograph cal section, of new maps prepared for distribution, and of the financial busine of the general staff. All the scientific duties of the map-room have passe over to the geographical statistical section.

There is no regulation on the admission of officers to the staff, nor is ther any direct preliminary examination. They are selected from :—

1. Those who have completed the prescribed course at the Military Academy
2. Those who notify their desire to enter the staff.
3. Those who are recommended by their superiors as officers likely to becom useful staff officers.

The year of probation at head-quarters, already mentioned, affords the opportunity of forming an opinion as to the capabilities of these officers, who at it conclusion return to their regiments, where they are usually employed as adjutants, or, on the occurrence of vacancies, with the brigades, divisions, or corps

MILITARY EDUCATION AND SCHOOLS IN 1869.

PRINCIPLES OF MILITARY EDUCATION.

The disastrous results to the integrity of the empire and the reputation of the army, of the military operations of Austria in 1858, against the combined forces of France and Sardinia, and of the still more humiliating defeat in the brief but momentous campaign of 1866 against Prussia, forced the military authorities of the Austro-Hungarian Empire to a thorough investigation of her military system and the education of the officers of her armies. It was not difficult to account for ultimate defeat in the larger armies and better prepared in all the resources by which large armies are equipped, fed, and moved. But military critics were not slow in discovering that better preparation should have been made, the field should have been taken earlier, and the forces combined and moved with great certainty and skill.

In a Report by the Minister of War on the necessity of reorganizing the educational system of the Imperial army, and in the plan for such reorganization the author, Baron Kahn, starts with a principle which the great Empress Maria Theresa announced when she laid in 1748 the foundation of the earliest war school in Austria (Wiener Neustadt), and which Frederick the Great avowedly imitated in his War Academy in Berlin in 1764,—"In this school shall be formed *men* only, and of them, *soldiers*." The choice of the profession of arms must be postponed till a good general education, reaching the moral as well as the intellectual and physical qualities of the future officer, has been imparted. The separation of the military pupils from their families at an early age must be avoided, and hence the number of cadet boarding schools for young aspirants are diminished. The intellectual preparation required, the sharpening and hardening the mental faculties, must not be gained by an exclusive mathematical course, in special schools, but in the general training of the public schools, the Real Schools or Gymnasia, of the country. A more practical knowledge of the common studies,—of geography and national history and the whole science of public economy and the martial resources of the empire, must be gained before the special military instruction begins. Admission to the higher military schools must be given only to aspirants of mature age, of high moral qualities, and of thorough intellectual activity—ascertained by careful examination and tested by at least one year's service in connection with a regiment.

PLAN OF REORGANIZATION.

The military schools are divided into two classes, viz.:—

(1.) Those which give a boy a general education, but prepare him at the same time for the military profession.

(2.) Those which educate boys only in military matters.

In the first class may be included (*a*) all those lower class institutions in which military orphans and sons of poor non-commissioned officers and commissioned officers are educated; (*b*) the middle (cadet) schools which prepare students for the military academies; (*c*) the military academies, viz., *Wiener Neustadt*, and the engineer and artillery academies. As pure military schools, may be mentioned the schools for non-commissioned officers in the infantry, engineer, artillery, and pioneer corps; the cadet and division schools in the infantry; the higher artillery and engineer courses.

(*a*.) The lower schools for the education of military orphans of a tender age have the same system as the common schools of the like class (*Normal* or *Volks Schulen*), where the moral qualities are to be chiefly inculcated on Christian principles; it is therefore necessary that children should not be taken from family influences earlier than can be helped. It will therefore only be necessary to take into these schools such children as are orphans, or sons of penniless parents, or at all events those whose families can not be induced to educate them at home even by pecuniary assistance. One school would be enough for such boys, in which the moral education would be the first object, as the necessary education required to prepare the scholars for the higher schools and regimental cadet schools may be obtained by their attending the public schools.

(*b*.) As regards the middle cadet schools, they should be abolished, as they do not agree at all with the above-mentioned principles. Boys are torn from home at much too tender an age, and are not brought up in the path of morality. Should a reform only of these schools be intended, this would be so expensive that the improvement gained would be dearly paid for.

As the army is not only to be composed of drilled soldiers, but also of generally well educated men, in order to improve their intellectual position and the spirit of the army, and to prevent the undue growth of drill and mere formalities, it is of great necessity that the military schools should be brought into harmonious concert with the civil schools. The deficiencies of the latter are less than those of the former, and it may be expected that they will soon be removed. In accordance with these considerations (and there are yet many more), it is much to be recommended that these two institutions should be abolished, not only as being right in principle, but also in agreement with the laws of national economy.

By the laying down of the system of education to be taught at the common middle schools, as a condition of being allowed to enter a military academy, in connection with the influences of the moral development of the family circle, up to the fifteenth year of a boy's life, it is to be hoped that the general above-named principles will be attained; and when the poor officers are allowed the means to educate their boys aspiring for the military academies by granting them pecuniary allowances, it may be hoped that they will not only be contented, and will care for the moral education of their children, but that the State also will find in the system the best means of attaining its object.

As regards the higher schools, especially military ones, the following may be observed:—

There are two establishments at present:

(*a.*) The Military Academy and Wiener Neustadt for general education.

(*b.*) The Engineer Academy, as a special school for the engineers, and for the instruction of officers in general.

The latter of the two is not efficient enough, for not more than eight or ten persons at most are instructed as engineers in it, the rest being detailed for the infantry, cavalry, &c. As by the establishment and organization of division schools a sufficient supply of officers aspirant is provided, and as the officers detailed from the above-named academies to the line are not more efficient than the scholars of the division schools (especially when the extra cost of the academy education is considered), the Engineer Academy must be looked upon as much too expensive. I agree, therefore, with those who recommend its abolition. On the other hand, the Neustadt Academy, which offers to its students a more general, and therefore a better founded education, and where highly instructed officers can be educated in larger numbers, may be allowed to remain, both in consideration of its efficiency and in honor of its serene foundress, the great Empress Maria Theresa, but on condition of its being reorganized in accordance with the principles laid down by that noble lady in the following words:—"That in this school shall be formed *men* only, and of them *soldiers.*"

The said academy must, however, seek to attain to a higher degree of perfection than of late. The classics must be more cultivated, as also national economy and a general civilized education. It should be organized for a course of six years, and it should receive students, sons of officers or military officials, who have successfully passed two or three Latin or technical schools.

The following subjects should be taught, besides the military and mathematical sciences:—

(1.) The Latin language, sufficient to understand the Roman classics.

(2.) All human sciences; particular attention should be paid to style, as it has been observed that since Latin has not been taught in the Wiener Neustadt Academy, there has been a great falling off in this respect. Rhetoric is to be taught in a practical manner, as the knowledge of how to speak is of importance in our constitutional era.

(3.) Philosophy, two years; in the first year, psychology; in the second year, logic to its full extent, moral philosophy, metaphysics, and the history of philosophy.

(4.) Statecraft, state and international law, and the fundamental law of the Austrian monarchy.

(5.) The rudiments of economy and national economy.

As special schools for the army the following should be retained:—

(*a.*) A special engineer and artillery school.

(*b.*) A special school for the pioneer corps, where the special knowledge necessary for that arm, as well as other military matters, are taught. The scholars should be between the ages of 16 and 19 years.

The students of the institutions intended for the education of the engineers and artillery will be enrolled in their respective corps quartered in Vienna. They will there have to pass a proper course of high mathematics, natural philosophy, and architecture at the Polytechnic; after they have succeeded in this, they will be either detailed for two years' active duty with their corps, or they may be at once ordered to pass through a higher combined course for artillery and engineers. If this will suffice for the due supply of technically instructed officers, the artillery and engineer academies may be abolished.

As regards the present school for the General Staff, it may be recommended that a general college for the whole army should be formed from it, wherein not only the higher military sciences should be taught, but also statecraft and national economy. It would be right to examine a candidate before he entered the college in the rudiments of natural philosophy and chemistry.

The student may obtain the time necessary for the cultivation of these two sciences by reducing the time till now assigned to sketching and surveying; the more so, as the student will have already attained a great perfection in this branch of his education by former study of it in the public and preparatory schools.

SYSTEM AS REORGANIZED IN 1869.

(A.)—ESTABLISHMENTS FOR THE EDUCATION OF YOUTH.

1. *Military Orphan Asylum.*

Military orphans and other deserving candidates for the army are supported in this establishment. They are educated at the public schools.

The number of pupils is 150. They pass thence into the other institutions, according to their talents and final destination.

2. *Military Technical Schools.*

At present four in number. It is proposed to reduce them to two. The course is of three years. Number of pupils, 150 in each school. They are educated for the Technical Academy, and to provide good non-commissioned officers for the Artillery and Engineers. They enter at 14 and leave at 16 years of age, at the end of their third year's course of study. Those enter the Technical Academy who have most distinguished themselves; the others are sent either for a two years' course to the Division Schools, or else to the Artillery Officers' Aspirant Schools.

3. *The Military College.*

The course is for two years. This is chiefly intended as a preparatory school for the Military Academy at Wiener Neustadt.

4. *The Military Academies.*

These institutions are intended to provide the army with officers properly qualified for the various branches of the army.

(1.) *The Wiener Neustadt Academy.*—The course is of four years. Number of scholars 100 per annum, or a total of 400. The academy is intended for the education of candidates for the Infantry Regiments of the Line and Military Frontier, the Jagers, and the Cavalry.

(2.) *The Technical Academy* (established in Vienna) for the education of the best pupils of the technical schools for the artillery, engineer, and pioneer services. The course is of four years; 65 scholars in each year, or 260 total. Each year's course of study is divided into two sections, one for artillery pupils, one for engineer pupils.

It is proposed that these officers should be attached to their respective corps in Vienna during their course of study, and should attend lectures at the Polytechnic at Vienna. When this course is over, they are to be attached for two years' service with their corps, or sent direct to go through the higher artillery or engineer course.

(B.)—SCHOOLS ATTACHED TO REGIMENTS OR DIVISIONS.

1. *Regimental, Troop, and Cadet Schools.*

Besides the troop schools in each regiment or independent battalion, there is one of the cadet schools for the education of all those, from the rank of sergeant downwards, who aspire to the rank of cadet, or who desire to acquire the preparatory knowledge necessary to be admitted into the schools for officers aspirant.

The number of pupils depends on the number of individuals qualified. The course is of two years.

2. *Regimental Schools for Officers aspirant.*

(a.) For the *Artillery*—The course is of two years; 50 scholars annually.

(b.) For the *Engineers*—A two years' course for each. *Pioneers*—Number of pupils according to demand.

3. *Divisional Schools for Officers aspirant.*

There is a school of this sort in each of the 23 infantry and cavalry divisions, and for the country gendarmerie.

The course is of two years. Number of pupils not fixed (at present nearly 1,200), in addition to which is the special instruction for their respective arms; when they have successfully passed an examination at the end of the course, they become officers aspirant.

(C.)—ESTABLISHMENTS FOR MORE ADVANCED PROFESSIONAL INSTRUCTION.

1. *The Higher Courses for the Artillery, and* (2) *Engineers.*

These are intended for the formation of highly scientific officers for the more important duties and higher command of these arms, and for the army in general. The course is of two years. The number of officer students is not fixed, but must depend on the number of highly qualified candidates of the above arms. They must have served for two years with their corps with distinction.

3. *War School* (Staff College).

This institution is intended for the formation of officers for the general staff. The course is of two years. The number of students is 80.

An officer must have served at least three years with his corps with distinction before he can be admitted, and officers who have served longer will, as a rule, be preferred.

(4.) *Course for Military Frontier Instruction.*

This is an academy for those who are already serving in the army. The course is of two years, and the number of pupils is regulated by the demand. The studies are as follows:—

State organization and frontier administration.
Civil and military law and legal procedure.
Agriculture, law of commerce, and exchange.
Revenue law and institutions.
Croatian language.

5. *Central Cavalry School at Vienna.*

The object of this establishment is to prepare distinguished regimental officers for the higher commands in cavalry, and to instruct them in the theory and practice of that arm, and the *haute école* of riding.

There are 41 students of the rank of captain (1st and 2d class), or one from each cavalry regiment. The course is of one year. The studies are as follows:—

Theoretical and practical riding, training of unbroken horses, service and drill regulations of cavalry, veterinary art, leaping, fencing, pistol-shooting, rudiments of strategy and history of war, tactics, field service, occupation of ground, surveying, army organization, knowledge of arms, pioneer and engineer service, practical drill, and field service and reconnaissances.

6. *Josephinum Academy for Medicine and Surgery,*

For the formation of students for the higher grades of the medical and surgical departments, from the rank of first lieutenant-surgeon.

This establishment ranks with the upper school of surgery at Vienna. The number of students from the army is fixed at 242. When there is accommodation there are, besides this, paying students.

7. *Military Veterinary Institution,*

Consisting of two sections:—(1.) Veterinary. (2.) Farriery.

Students who have passed the necessary examinations are entitled to their diploma and rights in the same way as students of the civil veterinary school in Hungary.

The students of the veterinary section are field surgeons and farriers.

The students of the farriery section are non-commissioned officers and soldiers and civilians. The number of soldier students depends upon the requirements of the army.

8. *Course for the Intendance.*

This establishment, *when organized,* is intended to qualify captains or first-lieutenants on the active establishment of infantry or cavalry, captain auditors, and properly qualified clerks, for the administration of the Intendance of the army now in progress of formation.

COURSES OF STUDY IN THE MILITARY SCHOOLS.

(I.) COURSE OF SCIENCES TO BE TAUGHT AND LECTURED ON AT THE REGIMENTAL CADET SCHOOLS.

Subjects. *Course of Lectures during—*	*1st Year.*	*2d Year.*
German Language and Style,	1	1
The Regimental Dialect,	1	1
Caligraphy,	1	1
Military Style,	1	1
Arithmetic,	1	0
Algebra,	0	1
Practical Surveying,	1	1
Mapping and Tracing,	1	1
Geography,	1	1
History,	1	1
Drill and Manœuvre Regulations,	1	1
Service Regulations,	1	1
Field Service,	1	1
Pioneer Service,	1	1
Construction of Arms,	1	1
Hand Drawing,	1	1
Fencing,	1	1
Gymnastics, &c.,	1	1
Target Practice,	1	1

(II.) COURSE OF INSTRUCTION AT THE SCHOOLS FOR OFFICERS ASPIRANT.

A.—*Ordinary Course.*	*1st Year.*	*2d Year.*
Military Style,	1	1
Military Essays,	1	0
Geometry and Trigonometry,	1	1
Higher Trigonometry and Conic Sections,	0	1
Mechanics, Natural History, and Chemistry,	0	1
Geometrical Drawing,	1	1
Practical Surveying,	1	0
Military Mapping,	0	1
Sketching and Tracing,	1	1
Geography,	1	1
Mathematical Geography,	0	1
History,	1	1
Military Administration,	1	1
Drill and Manœuvre Regulations,	1	1
Service Regulations,	1	0
Army Organization,	1	1
Tactics,	1	1
Field Fortifications,	1	0
Permanent do.,	0	1
Construction of Arms,	1	0
Hand Drawing,	1	0
Fencing,	1	1
Athletic Games,	1	1
Target Practice,	1	1
Riding, if possible,	0	1

B.—*Course for the Pioneer Regiment.*

High Mathematics.
Higher Trigonometry.
Practical do.
Analytical Geometry.
Mathematical Geography.
Natural History and Chemistry.
Military Economy and Finance.
Geography.
History.
Construction of Arms.
Fortification.
Architecture.
Mechanics.
Drill, ... }
Service, ... } Regulations.
Manœuvre, }
Pioneer Service.
Surveying.
Tracing.
Athletic Games.
Fencing.
Swimming.
Tactics.

(III.) COURSE OF INSTRUCTION AT THE PREPARATORY SCHOOL FOR THE WIENER NEUSTADT ACADEMY.

Subjects.	*Hours per Week*—*1st Year.*	*2d Year.*
Religious Instruction,	1½	1½
Latin,	7	7
Greek,	3	3
French,	4	4
German and Literature,	3	3
History and Geography,	5	5
Mathematics,	5	5
Natural History,	0	3
* Short-hand Writing,	3	0
* Caligraphy,	2	2
* Drawing,	2	2
* Athletic Games,	2	2
Dancing,	2	2
Swimming,	0	0
Total hours per week,	39½	39½

Subjects marked thus * are voluntary for scholars of classical schools, but are compulsory at the military schools.

(IV.) COURSE AT THE PREPARATORY SCHOOLS FOR THE TECHNICAL ACADEMY.

Subjects. *Hours per Week*—	*1st Year.*	*2d Year.*	*3d Year.*
Religious Instruction,	2	1	1
German,	4	3	3
French,	4	3	3
History and Geography,	4	4	4
Mathematics,	7	5	5
Analytical Geometry and Drawing,	3	4	3
Natural History,	2	2	2
Natural Philosophy,	0	3	5
Practical Chemistry,	3	3	0
Hand and Mathematical Drawing,	2	4	4
Caligraphy,	1	0	0
Military Style and Finance,	2	2	2
Artillery and Pioneer practice,	4	4	3
Service Regulations,	1	1	1
Drill and Manœuvre Regulations,	2	2	3
Management of Horses,	0	0	2
Athletic Games and Fencing,	3	3	3
Total hours per week,	44	44	44

(V.) COURSE OF INSTRUCTION AT THE MILITARY ACADEMY AT WIENER NEUSTADT.

* *Subjects.—(Hours per Week.) Years—*	*1st,*	*2d,*	*3d,*	*4th.*
Religious Instruction,	1½	1½	0	0
Latin,	4	4	0	0
Greek,	3	2	0	0
French,	4	4	3	3
German and Literature,	3	3	3	0
History and Geography,	4	0	0	0
Physical Geography,	4	0	0	0
Preparatory Philosophy,	1½	0	0	0
Philosophy,	0	4	0	0
Higher Mathematics,	5	6	0	0
Astronomy,	0	0	4	0
Analytical Geometry,	0	0	4	0
Practical ditto and Surveying,	0	3	0	0
Nat. Philos. and Fundamental Laws of Chemistry,	4	0	0	0
Theoretical Mechanics,	0	0	4	0
Review of Law and Statesmanship,	0	0	2	0
Cons'l Law of Austria, and its Adm'ive Org'tion,	0	0	5	0
European State and International Law,	0	0	0	3
Austrian Military Law (Criminal),	0	0	0	2
Military Finance,	0	0	2	3
Construction of Arms,	0	0	2	3
Pioneer Service,	0	0	3	0
Fortification,	0	0	0	4
History of War,	0	0	0	2
Drill Regulations,	2	0	0	0
Service do,	0	1½	1½	0
Manœuvre do,	0	0	1½	1½
Cavalry do,	0	0	0	1½
Tactics,	0	0	0	6
Surveying, Tracing, and Mapping,	4	4	4	0
Riding,	0	0	0	6
Fencing,	2	2	2	2
Athletic Games and Dancing, each 2 hours,	4	4	0	0
Total hours per week,	42	41	41	41

*** To these should be added the Bohemian and Hungarian language for the 3d and 4th years.**

(VI.) COURSE OF INSTRUCTION AT THE TECHNICAL MILITARY ACADEMY AT VIENNA.

Subjects.—(*Courses*—United Preparatory, Engineer, Artillery.)

Number of hours per week—Years—	Preparatory. 1.	2.	Engineer. 3.	4.	Artillery. 3.	4.
Zoölogy and Botany,	3	0	0	0	0	0
Mineralogy,	1	0	0	0	0	0
Geology,	0	0	2	0	0	0
French,	3	3	3	2	3	2
Higher Math. 1, 2, 3, Higher Geodosy 4th yr.	8	5	2	4	2	4
Analytical Geometry,	4	0	0	0	0	0
Sketching,	4	0	0	0	0	0
Practical Geometry,	0	4	0	0	0	0
Chemistry of Minerals,	3	0	0	0	0	0
Chemical Manufacture,	0	0	0	0	0	4
General and Technical Natural Philosophy,	2	3	0	0	0	0
Mechanical Technics,	0	0	2	0	2	0
Technical and Analytical Mechanics,	0	5	2	0	2	0
Construction of Machinery and Drawing,	0	0	4	0	0	0
Description of Machinery,	0	0	0	0	2	2
Mountain Roads,	0	4	0	0	0	0
Planning and Sketching,	0	0	5	6	0	0
Road and Water Communication, &c.,	0	0	5	0	0	0
General Architecture,	0	0	0	0	3	0
Machine Making,	0	0	0	0	3	5
Building,	0	0	0	0	4	4
Ornamental Drawing,	0	0	0	4	0	0
Review of the Law,	0	0	0	2	0	2
Military Criminal Law,	0	0	0	1	0	1
Construction of Arms (Engineer),	0	2	0	0	0	0
Do. of Batteries (Artillery),	3	6	0	0	0	0
Pioneer service,	0	1	0	0	0	0
Fortification,	0	0	4	6	3	3
Sappers' and Miners' Duties,	0	0	0	2	0	0
Military Finance,	0	0	2	2	3	3
Drill Regulations,	2	0	0	0	0	0
Service ditto,	1½	1½	0	0	0	0
Manœuvre ditto,	0	0	0	2	3	0
Cavalry ditto,	0	0	0	0	0	2
Tactics,	0	0	2	2	2	2
Surveying and Tracing,	0	6	3	0	3	0
Riding,	0	0	3	3	6	6
Fencing,	2	2	2	2	2	2
Dancing,	2	2	0	0	0	0
Total hours per week,	40½	41	43	43	51	50

(VII.) UPPER COURSE OF STUDY FOR ARTILLERY.

Subjects.	*Course*—1*st Year.*	2*d Year.*
French,	1	1
Practical Mechanics,	1	0
Construction of Machinery,	1	0
Fortification and Field Armaments,	0	1
Science of Higher Artillery,	1	0
Military Geography and Statistics,	1	0
Higher Tactics and Strategy,	0	0
National Economy and Finance,	1	0
Organization of the Constitution, and Administration,	0	1
State and International Law,	0	1
German Literature,	1	0
Active Duties of the General Staff,	0	1

(VIII.) UPPER COURSE OF STUDY FOR THE ENGINEERS.

Subjects.	*Course—1st Year.*	*2d Year.*
English,	1	1
Chemistry and Practical Technics,	1	1
The Mechanism of Building,	1	0
Fortification,	1	1
Architecture,	1	1
Ornamental Architecture,	1	1
Military History,	0	1
Science of Artillery,	0	1
Strategy,	1	0
National Economy and Finance,	1	0
Organization of the Constitution, and Administration,	0	1
State and International Law,	0	1
German Literature,	1	0

(IX.) UPPER COURSE OF STUDY FOR THE WAR SCHOOL.

Subjects.	*Course—1st Year.*	*2d Year.*
German Literature,	1	1
French,	1	1
Administrative Duties of the Staff,	1	1
Active Duties of the General Staff,	0	1
Tracing and Surveying,	1	1
Military Geography,	1	0
Higher Tactics,	1	0
Strategy,	0	1
Engineer Service,	0	1
Artillery Service,	0	1
Rudiments of State and International Law,	0	1
Rudiments of Nat'l Economy and Administrative Law,	0	1
Riding,	1	1

AUSTRIAN STAFF.

By recent ordinance the Special Staff Corps has been abolished. All the officers are borne on the army rosters according to their ranks, in particular branches of the service. No one will be allowed to enter the Staff School until he has served three or four years with the troops, and then captains and first lieutenants will be preferred to men of less service or rank. Having passed through the school course they will again join their regiments, and will then be appointed to the staff, as may be required. The period during which they are to remain on the staff will depend on their merits, their promotion, and the exigencies of the service; but as a principle they would generally rejoin their troop on promotion. There can be no doubt in the minds of those who have practically studied the question, that the system is sound. A special Staff Corps is never large enough to supply the demands of an army in the field for long, especially if the war is long and very active. The duties of a staff officer with an army actively engaged in the field, are so numerous and arduous that an *enormous number* are used up in the course of a campaign; and when you have only the Staff Corps to draw from, the supply of practical officers is not equal to the demand. The French experienced this in the Crimean War. By educating a number of young officers endowed by nature with the qualifications indispensable to form an *efficient* staff officer *on active service*, and by throwing them back into their regiments, they leaven the mass, and form a fund of selected and instructed officers from which can be drawn as occasion may require.—*Col. Crealock to Military Ed. Com.*

CAVALRY BRIGADE SCHOOLS FOR OFFICERS.

The following memorandum gives an account of an order lately issued, regulating Officers' Brigade Schools in the Austrian cavalry.

The object of the Cavalry Brigade schools will be to secure a supply of efficient riding masters throughout the service capable of giving general instruction.

The Central Cavalry School will continue to be a higher military and scientific establishment, with (in addition to the theoretical education of the pupils) a course of instruction which insures a uniform system of equitation and of breaking horses. A certain number of its best pupils may be transferred, after a year's attendance, to the *Kriegs-Schule*, with a view to their preparation for the staff.

Cavalry Officers' Brigade Schools educate officers of that arm, theoretically as well as practically, in all their duties. After the termination of the autumn manœuvres one will be formed in each brigade. The annual course lasts six months, and should begin on the 1st of October.

It is the duty of the Brigadier to superintend the school, but it is also that of commanding officers of regiments to inform themselves of the progress of their officers, and consequently to visit it often.

Before the 15th of August the Brigadier proposes to the Minister of War the station at which the school should be established, also the names of the instructors and pupils. It rests with him to make all arrangements for setting it in operation; and as his supervision must be continual, he should (whenever practicable) place it at the head-quarters of his brigade. Above all, a covered riding school must be fitted up; then a drill ground, a manège with artificial fences, and a school and fencing-room. Whenever possible the men and horses must be in barracks.

The best qualified officer in the brigade, of the rank of lieutenant-colonel or major, is to be selected for Commandant, and each school is to have two captains as instructors. One of them must have gone through the Central Cavalry School, and must have been reported as specially qualified to give instruction; the second must be considered one of the best horsemen in the brigade.

At the disposal of these officers there is the following staff:—one veterinary surgeon for instruction in the anatomy, diseases, and shoeing of horses; one sergeant in charge of the men and horses; one sergeant for quartermaster's duties and accounts; one farrier; three corporals; one trumpeter; twelve men per regiment of the brigade; and the riders of the horses attached to the school.

If there is an auditor (*Judge Advocate*) available, he attends regularly to explain the Articles of War and give lectures on military law. Should there be none, this duty devolves upon one of the captain instructors.

Six officers from the rank of first lieutenant downwards are sent yearly from each regiment. Each of them brings with him, besides his own horses, the one allowed him by Government. Every regiment sends six remount horses that have passed the first stage of breaking, and six that have just joined.

The principal subjects of theoretical instruction are—1st, Regulations of the army; 2d, Tactics, particularly as referring to the handling of cavalry; 3d, Field movements, and especially outpost duty, which are to be illustrated by examples from the history of war; the pupils will also draw and describe a tract of country, and give written reports upon field operations; 4th, description of the anatomy and diseases of horses, with their management and feeding both in the stable and the field; shoeing theoretical and practical, in all its details; 5th, thorough practice in the use of cavalry weapons, a general acquaintance with the arms of the artillery and infantry of the principal military nations, and an accurate knowledge of those employed in the Imperial army; 6th, a general knowledge of field fortification and of the works to be executed by the Pioneer Corps in combination with cavalry; 7th, the study of tracts of country, extending to the observation of roads, streams, coverts, and undulations; the correct reading and understanding of maps.

The practical branch of education at these schools has for its main object the maintenance throughout the army of the best fundamental system of equitation, and the adoption of any improvements in the cavalry service in general which may appear advisable. To this is added practice in getting over long distances through every description of country; and in judging when and where halts should be made with most advantage to single horsemen, or to detachments of troops. These marches are to be combined with patrolling, reconnaissances, and posting piquets, and are to be practiced once a week.

After every such march the pupils will send in a brief report and rough sketch, either next morning or within forty-eight hours, as may be ordered. They are to practice making this sketch on horseback as well as on foot. They must perfect themselves in gymnastics, and in fencing and singlestick, both on foot and horseback.

The regulations issued to the Minister of War as to distribution of hours and reports will be strictly followed, and no deviation will be permitted except under particular circumstances. Sundays and holidays are observed. No leave of absence, except in cases of urgent necessity, can be granted to either instructors or pupils during the course.

At the end of the season of instruction (*i. e.* at the end of March) the Cavalry Officers' Brigade School will be broken up; and all persons attached to it, and their horses, will return to their regiments.

EXPENDITURES ON MILITARY EDUCATION.

The appropriation for Military Education in Austria for 1870, was as follows:—

For non-commissioned officers and men, 504,000 florins (40,320*l*).

For officers, 978,000 florins (78,284*l*).

MILITARY SYSTEM AND SCHOOLS OF BAVARIA.

I. MILITARY SYSTEM.

Bavaria, with a population in 1867 of 4,824,421, on an area of 29,347 English square miles, maintained in 1869–70, an armed force of 56,760 men on a peace footing, and of 92,500 when placed on a war footing.

The armed force consists of the permanent army, the army of reserve, and the landwehr, or militia. The strength of the permanent army at the end of 1869 was as follows:—

16 Regiments of the line, each of 3 battalions,	28,304	men.
10 Battalions of Yager infantry,	5,870	"
20 Regiments of cavalry, each of 5 squadrons,	7,290	"
52 Batteries of artillery, with train,	6,361	"
10 Companies of engineers, with train,	1,212	"
4 Companies of sanitary troops,	624	"
6 Detachments of victualing troops,	288	"
Total strength of permanent army,	49,449	

The army of reserve numbered over 30,000 men, and is to be made more efficient. The landwehr is only organized in the large towns. The army is recruited by conscription. All men, from the age of 21 are liable to serve, but the sons of the nobility (*hohe adel*) are exempt, and they with the sons of superior employés in the service of the state have the privilege of entering the military school of cadets. Those who are drawn for the army are held liable to active service for eleven years, but are kept under arms, when on the peace footing, only three years, passing three years more in the Reserve when called out for actual training, and held for service for the remaining five years in the landwehr. No substitutes are allowed.

By the treaties of 1870, in time of war, the supreme command of the army of Bavaria passes to the Emperor of Germany, and in the further development of the Imperial policy, the military system of Bavaria as well as of the other German States, will be merged in that of Prussia. The following account of the system of Military Education, as it was in 1869, is taken from the Report of the Military Education Commission for 1870.

II. MILITARY EDUCATION.

There are four establishments for Military Education in Bavaria—1. The Cadet Corps. 2. The War School. 3. The Artillery and Engineer School. 4. The War Academy.

I. THE CADET CORPS.

The Cadet Corps was by a royal decree of May 14th, 1864, placed on the same footing with regard to instruction and final examination as the Real Gymnasium, and by a further decree of April 2d, 1868, the signification and value which are attached to an *Absolutorium*, or certificate of final examination, of a Real Gymnasium, were equally made to apply to an *Absolutorium* of the Cadet Corps.

There are three classes.

For admission into the first class, candidates must be acquainted with the following subjects:

Religious Instruction.—(*a.*) For Catholics: First chapter on Belief (*von den Glauben*) with preceding introduction, from page 33 to page 96.

The larger Catholic Catechism for all Bavarian bishoprics.

(*b.*) For Protestants: The heads of the Christian doctrine, with the ecclesiastical explanation of the same, as well as the most important passages of the Bible contained in the catechism.

German.—Grammar: formation of sentences; change in the form of sentences; copying from dictation small stories, narratives, and letters; facility in orthography and correct punctuation.

Latin.—Elementary rules: easy translations from Latin into German, and from German into Latin.

French.—Tolerably correct reading.

Mathematics.—Vulgar fractions; decimals; rule of three; interest; exercises in mental calculations.

Geography.—Europe generally, and Germany in particular, with especial regard to mountain chains and river districts.

Caligraphy.—German and English characters.

Second Class.

For admission into the second class candidates must be acquainted with the following subjects:

Religious Instruction.—(*a.*) For Catholics: A knowledge of the second chapter on the Commandments (*von den Geboten*), pages 100 to 159 inclusive.

The larger catechism for all Bavarian bishoprics.

(*b.*) For Protestants: All the knowledge obtained from the so-called preparatory instruction for confirmation (*Praeparanden-Unterricht*).

German.—Same as in first class.

Latin.—Syntax: verbal and written translations from German to Latin, and from Latin to German, out of Cornelius Nepos.

French.—Grammar: translation; reading; orthography.

Greek.—Syntax up to verbs in *μι*: written and verbal translations from German to Greek, and *vice versâ.* Greek characters.

Mathematics.—System of weights and measures; fractions; decimals; mental arithmetic.

History.—Greek and Roman history, including the period up to Clovis, king of the Franks.

Geography.—The world in general, Europe excepted.

Caligraphy.—German and English characters.

Third Class.

Candidates for immediate admission into the third class must not have exceeded their fifteenth year, and must produce certificates of all the classes of the Latin school.

At their examination for admission they must show that they are acquainted with all the subjects required in the examinations for the first and second class; and also with the following subjects:

Religious Instruction.—(*a.*) For Catholics: A knowledge of the third chapter on Means of Grace (*von den Gnadenmitteln*), page 160 to page 228.

(*b.*) For Protestants: Candidates must not only be thoroughly acquainted with the so-called preparatory instruction for confirmation, but must have been confirmed.

German.—Composition: translation from Cornelius Nepos. Reading aloud.

Latin.—Complete Syntax. Written and verbal translations from German to Latin; Cæsar's Commentaries; select passages from Roman historians; prosody; versification.

French.—Translations: German into French, and *vice versâ*; orthography and reading.

Greek.—Rudiments of grammar.

Mathematics.—Algebra; geometry.

History.—German history (from Clovis, king of the Franks), especially that of Bavaria.

Geography.—Europe; including political and statistical relations.

Caligraphy.—German and English characters.

Admission to the Army from the Cadet Corps.

On leaving the Cadet Corps—

(*a.*) Students who have obtained from the Examination Commission a certificate of "especially qualified" are named candidates, first class, for the rank of officer.

(*b.*) Students who have obtained a certificate of "qualified" are sent to a division of the army as candidates, second class, for the rank of officer.

Further, those who have displayed a "marked proficiency," not only as regards scientific acquirements but also as regards conduct and military capacity, may be appointed by the Education Commission to the rank of sub-lieutenant.

These last, however, in common with the candidates mentioned under heads (*a.*) and (*b.*) are required, after six months' service in a division of the army, to pass through the military scientific course in the War School, and at the end of the course to undergo an examination. The same conditions are alike in force for the young nobility entering the army from the *Pagerie* with the *Absolutorium* of a gymnasium.

II. THE WAR SCHOOL.

There are two courses, viz.:—(*a.*) The preparatory course. (*b.*) The military scientific course.

All persons desirous to obtain commissions as officers, whether compelled to enter the army, or volunteers, must undergo the preparatory course at the War School, unless they are in possession of an *Absolutorium* of a Latin or Real Gymnasium.

Candidates for the preparatory course (*a*.) must pass an examination for admission, and as a qualification for admission must have served an entire year satisfactorily in a division of the army.

After the completion of the preparatory course these students are named candidates, second class, for the commission of officers, and as such enter the military scientific course.

The following enter the second course:

(*a*.) Students with the *Absolutorium* of a Real Gymnasium, or coming from the *Pagerie*.

(*b*.) Students who passed the preparatory course successfully.

(*c*.) Those to whom military service is compulsory, and volunteers, both possessing the *Absolutorium* of a Bavarian gymnasium, and being desirous to become officers. These candidates must, however, perform six months' service satisfactorily, and on termination of this service they are named candidates, second class, for the commission of officers.

At the expiration of the military scientific course there is a general examination of all candidates before the "Commission of High Studies and Examinations," and decision is given—

(*a*.) Respecting efficiency for the position of officer.

(*b*.) Respecting the army rank of those who have passed their examination without reference to former rank (*Chargen-verhältnisse*).

Very distinguished conduct before the enemy can alone exempt candidates from this examination.

Candidates examined are classed by the above Commission under the following heads; "*especially qualified*," "*qualified*," and "*not qualified*;" and no candidate for the commission of officer can be named officer without the certificate of "*qualified*."

Candidates, who have shown the necessary efficiency to entitle them to be appointed officers, are named candidates, first class, for the commission of officer, or, in consequence of the diminished number of officers in the active army, are promoted to be sub-lieutenants.

Only those candidates for the commission of officer, who have received the certificate "especially qualified" in the above final examination of the military scientific course, can present themselves for admission into the War Academy.

III. THE ARTILLERY AND ENGINEER SCHOOL.

In this school, consisting of two courses, each lasting a year, an opportunity is afforded to all candidates, first class, for commissions as officers to devote themselves to technical military science, and to pursue the special studies having reference to the military operations in question; and, in this school, only those candidates for the commission of officer are received, who have successfully passed the military scientific course, and who, at the examination passed before the "Commission of High Studies and Examinations," have been pronounced "*qualified*" not only to remain in the Artillery and Engineer regiment, but especially qualified to enter the Artillery and Engineer School.

Immediately after passing the second course of the War School, and before admission into the Artillery and Engineer School, these candidates must serve six months in an Artillery or Engineer regiment.

Candidates pass over from the first to the second course without a general examination, and should a doubt exist respecting the efficiency of any of the candidates, such candidates will be required to undergo a special examination before the "Commission of High Studies and Examinations," who will decide, in the case of such candidates, whether they are to go through the course a second time, or retire from it.

The same regulations apply for the second course, and the appointments as sub-lieutenants of Artillery or Engineer students are determined according to the number of officers required in those corps.

Candidates for the Engineers are required, after passing through their school, to undergo a six weeks' course of design, during which period each candidate must without assistance make a complete drawing of an edifice.

IV. THE WAR ACADEMY.

The War Academy has for its object the higher scientific and practical education of officers, in every branch of the military profession, on the staff, as also of the higher adjutants. It aims also at the development of all military scientific subjects.

The War Academy has three courses, each lasting nine months, and the intervals are employed in practical exercises.

The number of students in one course must, as a rule, not exceed twelve, and every upper or sub-lieutenant who has served not less than four years with the troops, can attend the academy.

Officers are only admitted into this school who possess the requisite knowledge of their respective branches of the military service.

Further, their conduct must have been highly satisfactory; they must be sound in health, and their pecuniary affairs must be in good order, and they must combine prominent mental qualifications with a tendency to higher scientific attainments.

The "Commission of High Studies and Examinations" decides by examination as to the necessary qualifications for admission; then follows a summons, issued by the Ministry of War, to attend the War Academy, and each time only for one year.

Officers who, on the decision of the Examination Commission, do not display sufficient capacity or zeal, or whose military behavior or moral conduct has not been satisfactory, will not be summoned to attend the next course.

The scientific education of those admitted into the War Academy consists also in—

(*a.*) Attending lectures at the University and the Central Polytechnic School.

(*b.*) Higher lectures upon military scientific subjects.

(*c.*) Exercises in living languages.

The practical education embraces the duties of staff officers and of higher adjutants, acquaintance with the different branches of military service, also corporal activity, and especially exercises on horseback.

Officers who, on the decision of the Examination Commission, have during the three courses of the War Academy displayed zeal, talent, and application, will, on leaving the academy, have their names sent in to the King for especial notice.

Each of the military schools has its own commandant. The Cadet Corps is commanded by a First Lieutenant of Infantry, the War School by a Major of the Quartermaster-General's Staff, the Artillery and Engineer School by a Major of the Engineer Staff, and the War Academy by a Colonel of the General Staff, to whom an Adjutant is attached.

With regard to the systematic process of education pursued in the military schools, and to the application of the different means employed to impart instruction, these establishments are placed under the superior direction of the "Inspection of Military Schools;" in all other respects, they are under the control of the Ministry of War, and the professors employed in them are selected according to their special qualifications.

ROYAL MILITARY SCHOOL AT DRESDEN.

1.—*Organization and Admission.*

The Royal Military School at Dresden was reorganized in 1867, after the war, and organized like the schools of the same rank in Prussia. Formerly it consisted of two separate schools, the artillery school and the *Cadettencorps*, both completing the education of their pupils; but now a higher academy in Prussia must be attended for finishing the professional education, either in Berlin, Erfurt, &c.

By the new "regulative," the *Cadettencorps* in Saxony consists of six classes, and has (1,) 20 free scholars; (2,) 84 half-free scholars; (3,) 20 not free scholars—in all, 124. Besides these, "volunteers" may be admitted; but, if foreigners, without any claim to being admitted afterwards to the royal army.

For admission to any of the 124 places, the sons of officers of the army, killed or invalid, or of such subalterns as have served 25 years, and of civil officers of high merits, are preferred to others.

The aspirant must have completed his 11th year of age, and not be over 18 years of age.

In general the boys must have, if 11 years old, the requisite knowledge of Quinta; if 12, of Quarta; if 13, of Quarta; if 14, of Tertia; if 15–17, of Secunda, of a gymnasium, (college.)

On admission, every pupil has to pay 100 thalers for a full equipment, for books, &c.; and to bring with him 12 shirts, 18 pairs of stockings, 18 handkerchiefs, 6 drawers, 1 pair of house shoes, 2 white cotton night-jackets.

During his stay every pupil has to pay, (besides 25 thalers for books when transferred to III,) annually, (*a*,) 50 thalers, if a free scholar; (*b*,) 110 if half free; (*c*,) 210 if not free; (*d*,) 260 if a Saxon "volunteer;" and, (*e*,) 300 if a foreign "volunteer."

2.—*Course of Instruction.*

The course of instruction in the Military School embraces six years, with six classes, of which, as was said before, VI, (the last,) V, IV, and III correspond to V, IV, and III in a gymnasium, II and I to lower

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Document.

Bericht über (report on) *die Kgl. Turnlehrer Bildungsanstalt, von Dr. Kloss*, 1864, pp. 34, (*with a representation of the grounds and buildings.*)

and upper Secunda, with the only difference, that instead of Greek, instruction is given in English and in the elements of a military education. It will be, therefore, sufficient to mention the course of instruction in the highest class as given in the new regulation.

1. Religion. (The number of lesson hours is not stated.)
2. Latin: Written exercises; Livy, Ovid, Virgil.
3. German: History of literature; explanation of dramatic pieces; free discourses, with a verbal résumé, and debates.
4. French: Translations; extemporalia; compositions; exercises in speaking.
5. Mathematics: Progressions; logarithms, and their application; applying of algebra to geometry; trigonometry; elements of stereometry.
6. English: Oral and written exercises; free discourses on historical and geographical subjects; review of the same in English; reading of poetry.
7. History: Modern history; review of universal history; history of Northern Germany.
8. Geography: Mathematical and physical geography; review of political geography, with particular regard to Northern Germany.
9. Natural philosophy: Electricity, magnetism, sound and light.
10. Drawing of plans; finishing the designs of the survey.
11. Surveying: Topographical surveying on a large scale; drawing of grounds; *croquiren*.
12. Free-hand drawing. (Not obligatory.)

Those cadets to whom, in consequence of the examination at the end of the course, the testimonial of maturity for ensigncy can be given, are presented to his Majesty as "characterized" ensigns, whilst all others who do not answer the demands have to perform, in some other way, their legal service in the army.

MILITARY SYSTEM AND EDUCATION IN SWEDEN.

I. MILITARY SYSTEM.

THE Swedish army is composed, according to official data in Martin's Year Book, of five distinct classes of troops, viz.:

1. The *Indelta*, or national militia, paid and kept, not by the Government, but by the landowners, and, to some extent, from the income of State domains expressly reserved for this purpose. Every soldier of the *Indelta* has, besides a small annual pay, his *torp*, or cottage, with a piece of ground attached, which remains his own during the whole period of service, often extending over forty years, or even longer. In time of peace, the troops of the *Indelta* are not called up for more than a month's annual practice, and for the rest of the year are free from military duty. In time of war, an extraordinary *Indelta* has to be raised by landowners, who, on this account, enjoy certain privileges, including non-contribution to the cost of the peace establishment. When the soldier dies, his widow turns over the holding to his successor, whom the owner of the land is bound to provide within three months. In the location of the officers, regard is had to the situation of the men who compose the company, regiment, and larger divisions.

2. The *Beväring*, or conscription troops, drawn by annual levy, from the male population between the age of 20 and 25 years. The law of conscription, which admits the right of purchasing substitutes, was introduced into Sweden in 1812. About 19,000 men are drafted annually, one-tenth of which number, on the average, find substitutes for themselves, at a cost of from 10*l.* to 25*l.*

3. The *Värfvade*, or enlisted troops, to which belong the royal life-guards, the hussars, the engineers, and the artillery. The men may engage for either three, or six, or twelve years; but the greater number are for six years, peculiar inducements being held out for this term.

4. The volunteers, first organized in the year 1861, by the spontaneous desire of the population of the kingdom. In time of peace the volunteers are individually free, and bound by no other but their own rules and regulations: but in time of war they may be

compelled to place themselves under the command of the military authorities.

5. The militia of Gothland, consisting of twenty-one companies of infantry, organized in a similar manner to the *Indelta*, yet quite independent of the latter. They are not compelled by law to serve beyond the confines of the Isle of Gothland, and have a separate command from the other troops.

The armed forces of Sweden, not counting the Volunteers, consist altogether of—

Indelta,	33,405	rank and file.
Beväring,	95,295	" "
Värfvade,	7,692	" "
Militia of Gothland,	7,921	" "
Total,	144,313	

In the organization of the army, as here enumerated, 85,000 men belong to the infantry of the line; 6,000 to the cavalry; 5,000 to the artillery, and the rest to the irregular militia. The number of volunteers was returned at 40,848 in 1869, but about one-third of these formed part also of the *Indelta*. In the parliamentary session of 1862, and again in the sessions of 1865 and 1869, the Government brought bills before the Diet for a reorganization of the whole of the army, on the basis of extending the conscription, reforming the *Indelta*, and doing away, to a great extent, with the *Värfvade*. But neither of these propositions was adopted by the representatives of the people, whose habits are not easily set aside.

Navy.

The Navy of Sweden was reorganized in 1866–67, being divided into two distinct parts; the first to serve as an ordinary fleet of war for aggressive as well as defensive purposes, and the second stationary, and solely devoted to coast defense. It consisted in 1869 of—

6	Iron-clads, of 638 horse-power, and	10	guns.
21	Unarmored steamers, of 2,810 horse-power and	127	"
16	Sailing vessels, with	376	"
158	Gunboats and floating batteries,	551	"
	Total, 201 vessels, of 3,458 horse-power....	1,064	guns.

The iron-clads are built after the American model; one a turret ship, called the "John Ericsson," is partly covered with steel armor. There were 6,453 sailors and marines in active service, and 28,000 men were on furlough or attached to the fleet of reserve and coast defense.

The expenditure for the army in 1869 was 9,528,600 *riks dalers*, and for the navy 3,963,800. The indebtedness of the state is about $41,000,000, mostly contracted in aid of a system of railways.

MILITARY SYSTEM AND EDUCATION IN NORWAY.

I. MILITARY SYSTEM.

The armed forces of Norway, as organized by law in 1866, consisted in 1869 of the following:

1. The regular army, with reserve, raised partly by conscription and partly by enlistment, which must never exceed 12,000 men in time of peace, and can not be increased above 18,000 men without the special consent of the Storthing. The average number in time of peace for ten years past, is about 6,000. The term of service is seven years, but the men are on duty only 42 days in the first year, and this past, they are sent home on furloughs, with an obligation to meet for annual practice of 24 days during the following six years.

2. The Militia or *Landvaern*, which consists of all able-bodied male citizens 18 years of age, who for three years must, at stated periods, be trained in the use of arms and field exercises, and at the end of this time, be enrolled in

3. The final Levy, or *Landstorm*, where he is liable to be called out in time of war, until he is 45 years of age.

The normal strength of the armed forces of Norway in 1869 was returned at 47,714 on a peace footing, and 112,225 on a war footing, and required an appropriation of 1,215,500 *specie dalers*, making the cost of the Norwegian soldier (on the average of 6,000 men under arms), $155 per annum.

The King has permission to keep a guard of Norwegian volunteers, and to transfer, for the purposes of common military exercises, 3,000 men annually to Sweden; otherwise a soldier of Norway can not set foot in Sweden; or one of Sweden, in Norway.

The naval force consists of 20 vessels, of 2,280 horse-power, and 168 guns, manned by 2,248 sailors, who are volunteers out of 60,000 men in the maritime conscription, which includes all seafaring men of the seaports, between the ages of 22 and 35.

Three of the vessels are iron-clad monitors.

In order to utilize the vessels of the navy they are attached to the postal service, and are employed in carrying the mails and passengers, under a special minister, charged with the mail service. The navy and post service cost in 1869, 1,172,815 *speciedalers.*

MILITARY SYSTEM AND EDUCATION IN DENMARK.

I. MILITARY SYSTEM.

THE armed forces of Denmark as organized in 1870, consists of—

1. The Regular or active army, and—2. The army of Reserve.

By the law of 1867, every male citizen who has completed the age of 21, is liable to service for eight years in the former, and to be enrolled ready for special call for eight years more in the latter.

The Kingdom is divided into five territorial brigades, and each brigade in four territorial battalions, in such way that no town except the capital, will belong to more than one battalion. Each territorial brigade furnishes the contingent of a brigade of infantry and one regiment of cavalry. The artillery contingent is furnished, one half by the two first territorial brigades, and the second half by the three other divisions. The forces therefrom comprise 20 battalions of infantry of the line, with 10 depot battalions and 10 of reserve; 5 regiments of cavalry, each with 2 squadrons active, and 2 depots; and 2 regiments of artillery, in 12 battalions. The total strength of the army, exclusive of the reserve, is 36,782 rank and file, with 1,068 officers, on the peace footing, and 47,725 men, and 1,328 officers on the war footing. About one half of the enrolled regular army are usually on furlough. The drilling is divided into two periods; the first lasts six months for the infantry; five months for the field artillery and the engineers; nine months and two weeks for the cavalry; and four months for the siege artillery and the technic corps. Each corps must drill each year during thirty to forty days.

The navy comprises the following vessels, all steamers:

Six *iron-clads*, with an aggregate of 2,455 horse-power, and with 65 guns—two of which are turreted, armed each with two of Armstrong rifled cannon; 12 *unarmored vessels* of 1,820 horse-power, and with 192 guns; 7 gun-boats of 480 horse-power and 38 guns; 6 paddle-steamers, of 1,060 horse-power and 38 guns. The navy in 1869 was manned by 901 men, and officered by 15 commanders, 34 captains, and 67 lieutenants.

The budget for 1869 provided 3,783,978 *rigsdalers* for the army, and 1,676,681 for the navy.

NAVY AND NAVAL EDUCATION IN FRANCE.

I. MILITARY AND COMMERCIAL MARINE.

The progress of the French Navy is represented in the following statistics taken from the Statesman's Year Book for 1871: In 1780 the war fleet consisted of 60 first-class ships, 24 second class, and 182 smaller vessels,—total 266 ships, with 13,300 guns, and 78,000 sailors. In 1805, the number was reduced by casualties and neglect to 18 men-of-war, with 1,352 guns. In 1844 the whole force amounted to 226 sailing vessels, and 47 steamers, with 8,639 guns and 24,513 sailors. In 1855 the navy was reorganized, by the introduction of every new appliance of naval architecture, construction, and ordnance, with the following results, in 1869–70:

Classes.	Number.	Horse-Power.	Guns.
1. Iron-clads, ...	62	28,150	672
2. Screw Steamers, ...	264	55,812	1,547
3. Paddle Steamers, ...	62	8,665	154
4. Sailing Vessels, ...	113	....	672
Total, ...	401	92,627	3,045

The iron-clads *Magenta*, *Solferino*, *Couronne*, *Normandie*, *Invincible*, and the cupola ship *Taureau*, are plated, with rifle breech-loading guns, and are not surpassed in strength and destructive armament by the ships of any other navy.

Eleven of the smaller iron-clads, besides the ordinary floating batteries, are so constructed that when out of service they can be taken to pieces, packed up and stored away at the arsenal of Toulon.

The navy is manned by a marine conscription, which dates back to 1683. For this purpose the maritime population is divided into five grand divisions, the centres of which are the five great Naval stations, with 12 subdivisions, including all the great seaports. Within these divisions all men and youths from the 18th to 50th year of age, devoted to a sea-going life, are enrolled, to the number of about 170,000. Except in a national emergency the government dispenses with the services of all under 20, and over 40, as well as pilots, captains, fathers of large families, and seamen ready for long voyages in merchant ships.

The navy was officered in 1869 by two admirals, 16 vice admirals in active service, and 10 on the reserve list; 30 rear admirals in active, and 19 on reserve list; 130 captains of first class; 286 captains of frigates; 825 lieutenants; 600 ensigns; and 300 midshipmen, or aspirants;—total, 2,218 officers, and 39,346 sailors, who, together with engineers, dockyard laborers, surgeons, chaplains, brought up the number in actual service in 1869 to 74,403, which did not include 28,623 marines.

The commercial marine of France embraced in 1867, 15,259 vessels, with a tonnage of 1,042,811, ranging from 30 tons to 800 tons each, and employing over 150,000 seamen, including 40,000 officers, whose duties required special professional training. Of these, 607 were steamers, with an aggregate of 129,777 tons and 55,160 horse power. The value of the commerce of France for 1867–8 was 7,500 millions of francs.

II. NAVAL AND NAVIGATION SCHOOLS.

The French government was among the earliest to provide special schools for the officers of its merchant service as well as for its war-vessels. Prior even to the establishment, under an ordinance issued by Cardinal Richelieu, of schools for the study of navigation in 1629, Henry III., in 1584, had instituted examinations for boatswains and captains of merchant vessels, for which preparation had to be made with private teachers. In 1791 free schools of hydrography were authorized in thirty-four sea-ports; out of 24,000 pupils of these schools, from 1850 to 1866, 3,731 qualified themselves as captains of vessels in the foreign trade, and 5,118 for service in the coasting trade. Prior to 1800, in fitness of design and skill in construction, French naval architecture was superior to that of other countries.

The system of education for the mercantile and military marine embraced in 1866 the following schools:

1. Nautical School for the Orphans of Sailors.
2. The Inflexible and other School-ships.
3. Naval Apprentice Schools at the government naval stations.
4. School for Boatswains and Shipmasters.
5. School for Naval Engineers and Stokers.
6. Naval Drawing School.
7. Schools of Navigation and Hydrography.
8. Naval School at Brest.
9. School of Naval Architecture at Paris
10. School of Marine Artillery.
11. School and Board of Hydrography.
12. Naval School of Medicine and Pharmacy.

NAVAL AND NAVIGATION SCHOOLS IN GERMANY.

INTRODUCTION.

The organization of the North German Confederation, and more recently of the German Empire, and the necessities of its position, have already led to the rapid development of a military marine, and the unity of the commercial interests of the different States will soon expand its navigation as well as its naval armament.

1. KINGDOM OF PRUSSIA.

Long before Prussia was largely interested in either a military or commercial marine, the government had provided for the systematic training of all concerned in the construction, equipment, and running of ships, whether destined for the defense of the country or to its commercial interests. After enjoying opportunities of studying the theory of their business, as well as the practical application of its principles, they must pass an examination to test their knowledge both of the theory and practice—with a provision that no one shall assume the responsibility of the life and property of others without holding a certificate of proficiency.

NAVIGATION SCHOOLS.

There are six schools, situated at Memul, Dantzic, Pollau, Grabow (near Stettin), and Stralsund, devoted to the education of young men who propose to become mariners and masters of merchant vessels. A single director, residing at Dantzic, has the superintendence of all these schools, which have each two professors, each in charge of a division of the school, and an assistant who devotes himself to drawing in connection with the construction of vessels, and of charts. The principal has charge of the higher division, in which navigation and geography, both of the sea, and of the natural productions and commercial facilities of different countries are taught. The lower division deals with subjects which concern pilots—their professional and legal duties.

Candidates must have mastered the subjects of elementary instruction, and are examined as to their ability to read, write, and compose in their native language, and to go through ordinary arithmetical problems with facility and accuracy. An examination of candidates takes place every year at each school, which is conducted by the head professor, in the presence of the director of this class of schools.

To be admitted to the examination the candidate must bring a certificate of good character, that he is over 14 and under 40 years of age. The school fee is ten thalers per quarter for the highest or navigation class, and six thalers for the lower or pilot's class. There are 32 lessons per week in both divisions.

The subjects taught in the lowest division are:—arithmetic, plane geometry, carpentry, plane and spherical trigonometry, navigation, territorial and astronomical observations, drawing of sea charts and astronomical maps, and the English language.

In the highest division, in addition to the studies of the lower, in which the pupils are carried further on, rigging and other points of practical seamanship, drawing the different parts of a vessel, the commercial requirements respecting a ship's papers, and the course of exchange at the principal commercial ports, are taught.

A final examination is held in which diplomas are awarded to those who have completed the whole course, and of proficiency in certain studies, either of which are of practical service in obtaining situations, and without which certain positions can not be obtained.

NAVAL ARCHITECTURE.

In the Trade or Polytechnic School in Berlin, provision is made for instruction in naval construction:

First—In the mathematical foundation of the most important physical laws; in physics, drawing, modeling, and the general principles of construction; in practical hydraulics; the theory of machinery, and the steam-engine.

Second—In the application of these principles to the business of ship-designing and construction, and particularly to designs for vessels, and the different parts of a ship in detail; to the art of shipbuilding; the general displacement of water and stability; hydrostatic calculations; general principles with regard to the form of vessels, and the theory of sailing and steam-ships; details of construction of wooden and iron vessels; practice; and planning and calculating the cost and capacity of vessels.

There are reviews of the ground gone over at the close of each term, which is obligatory only on those who enjoy free places, and each student receives a certificate at the end of his course, setting forth all his lectures and practical exercises, with an opinion as to his practical judgment.

II. AUSTRIA.

Under the new army organization of 1869, the military forces of the whole empire are divided into the Standing Army, under the control of the Imperial Minister of War; the Landwehr, whose duties are limited to the respective divisions from which it is drawn, under the control of the Austrian and Hungarian war ministers; and the Landstrum, or general levy, which is compulsory in the Tyrol and Military Frontier, and voluntary in the rest of the empire. The Emperor is supreme chief of the military and naval forces, and from him must emanate all concentrating movements of troops. In 1871 the Standing Army consisted of 278,470 men on the peace footing, and 838,700 on the war footing.

The naval forces of Austria consisted in 1871, of 46 steamers and 10 sailing vessels, viz.:

		Horse-power.	Guns.	Tonnage.
2 Iron-clad Line-of-battle Ships,..		1,800	22	11,138
7 Iron-clad Frigates,............		4,550	88	25,452
4 Screw Frigates,..............		1,500	149	9,407
3 Screw Corvettes,.............		860	50	4,703
7 First class Gunboats,..........		1,610	30	4,311
3 Second class Gunboats,........		270	9	999
16 Paddle Steamers,.............		2,381	51	9,442
10 Sailing Ves'ls, viz.:	2 Frigates,..	....	35	3,032
	2 Corvettes,.	....	30	1,416
	4 Brigs,....	....	40	1,176
	2 Transp'ts,.	....	4	283

The navy is officered and manned by 2 vice-admirals, 4 rear-admirals, 24 captains of steamers and frigates, 14 captains of corvettes, 106 lieutenants, 343 ensigns and cadets, and 3,803 sailors, besides 875 officers and men in the marine corps. On the war footing the sailors number 3,743, and the marines 1,410. The men are recruited by conscription from the seafaring population, although the voluntary enlistments in the province of Dalmatia renders its enforcement unnecessary.

The total commerce of Austria, comprising imports and exports, exceeded $400,000,000. The commercial marine includes 7,830 vessels, of 324,415 tonnage, and 27,979 seamen. The Austrian Lloyd, a trading society established in Trieste in 1833, owns a fleet of 70 steamers, of 12,500 horse-power.

To provide officials, well instructed and trained in the administration of each department of the public service, military and civil—war by land and sea—both for military and commercial purposes, the government establishes schools, with studies and practical exercises adapted to each branch.

SCHOOLS FOR THE MILITARY AND COMMERCIAL MARINE.

1. *Military Marine.*

There are in Austria several kinds of naval schools, as follows: One each for sailor boys, for marines, for quartermasters, for naval pupils of the first class, for naval pupils of the second class, a theoretical school for naval cadets, and a superior establishment for naval officers.

1. The school for sailor boys is intended to train, as petty officers for the navy, young men from the Slave and German provinces, admitted between 12 and 14 years of age into the naval service. The instruction lasts until the pupil has attained the age for the conscription; he is then entered as a sailor and becomes a petty officer as soon as he gets sufficiently used to the sea. The highest post he can attain is that of upper boatswain (*Hochbootsmann.*)

2. The schools for marines (*Zeugscorps*) receive men drawn from different corps of the army. They are trained as petty officers, and a part receive the uniform. Those who are fit to become officers receive their promotion when they leave their corps to enter the school.

3. The school for naval cadets of the first class is kept on board a war vessel selected for the purpose. The object is to prepare for the naval service youths of 16 or 18 years of age, who, on entering the school have already received a complete civil technical education. The teaching here consists, therefore, chiefly of practical seamanship, and also of the application of previously acquired scientific knowledge to navigation and nautical astronomy. The course occupies a year; on leaving, the pupil is received as a naval cadet. After passing two or three years at sea these cadets enter the theoretical school for naval cadets.

4. The school for naval cadets of the second class is intended solely to prepare them to become officers. In this school, beside the pupils placed there at the cost of the State, there are others maintained by endowments, and also others who pay for their instruction. The sons of officers and State functionaries are entitled to enter this school at the public expense, and any Austrian subject who has the necessary qualifications is admitted on payment. Foreigners are also admissible as paying pupils, provided they can obtain authorization from their own government to enter the Austrian service. To be admitted, candidates must be between 12 and 14 years of age, of sound health without bodily defect, and able to pass a previous examination. The instruction is given in accordance with a determined plan, on board a vessel prepared expressly to receive the pupils. After three years' instruction the pupils leave the school as naval cadets and are sent to sea. At the end of two or three years' active service the cadets are admitted to the theoretical school. This school receives from 40 to 50 pupils. The chaplain on board is charged with the religious instruction; the other teaching is given by professors from the hydrographic schools. The naval officers of the school-ship give the instruction in practical seamanship.

5. The theoretical school for naval cadets is on shore, and its course occupies a year, after which the pupil undergoes the examination prescribed for his commission as an officer. On leaving this theoretical school the pupils are still naval cadets, but become officers when appointed to a ship.

6. The superior school for naval officers is intended for the further improvement in mathematical and hydrographic studies, of such young men as have shown decided talent and taste for those sciences.

III. GERMAN EMPIRE.

The jurisdiction of the German Empire, by treaty concluded at Versailles, and ratified by the Diet of North Germany Dec. 10, 1870, embraces among other national interests, the Army and Navy, and the protection of German navigation.

The war-fleet of the Empire, which embraces all that had been constructed by Prussia since 1848, consisted in June, 1870, of 38 steamers and 7 sailing vessels, with 42,415 tonnage, and 480 guns.

	Horse-power.	Guns.	Tonnage.
5 Iron-clads,	3,700	62	15,846
9 Steam Frigates and Corvettes,	3,200	200	14,210
8 " First class Gunboats,.	640	24	5,858
14 " Second " "	840	28	5,858
1 " Yacht,	160	2	445
2 Paddle-Steamer Corvettes,	600	13	1,750
3 Frigates (sailing vessels),	...	114	3,736
4 Brigs, "	...	46	1,927

The German navy was officered and manned by 1 admiral, 1 vice-admiral, 1 rear-admiral, 27 captains and 217 lieutenants, and 3,283 seamen and boys, besides 2,760 in the marine corps. The sailors of the fleet and the marine corps are recruited by conscription, from the seafaring population, which numbers 80,000.

The provision for naval expenditure in 1870, was for—

Ministry of Marine,	81,250	*thalers.*
Administration officers,	65,557	"
Pay of seamen and marines,	1,086,990	"
Repairs of ships,	890,000	"
Marine hospitals,	71,820	"
War material,	1,221,317	"
Miscellaneous,	179,796	"
Total ordinary expenses,	3,596,730	"
Extraordinary expenditure,	4,403,460	"
Grand total,	8,000,190	"

The artificial harbor and dry-docks at Wilhelmshaven, in the Bay of Jade, on the North Sea, which was opened by the King of Prussia in June, 1869, have cost over $10,000,000.

The system of professional training for officers of the Imperial Navy is not yet matured. The Naval School at Kiel is still recognized. Aspirants enter as naval cadets after passing an examination equivalent to the requirements of a gymnasial maturity certificate, which in general education is superior to the requirements of graduation of either our Naval or Military Academy. Before entering on their professional studies, the cadet is first sent on a cruise to test his aptitude for sea-service. He then studies eight months at school and one year at sea, to pass as midshipman; and one year more at school, and three years at sea, to become sub-lieutenant.

MARINE ACADEMY AT KIEL.

The German Marine Academy established in 1872, at Kiel, is designed not for the education of cadets, but for the professional training and improvement of officers already in the naval service of the empire—and is of the same character as the Staff School of Berlin for officers of the army. Those only will be received as pupils, whose conduct and talents seem to qualify them for superior scientific attainments, and, hereafter, for the filling of the most important posts. These officer-pupils will be required to give proofs of their diligence and progress by the production, from time to time, of theses and dissertations on scientific subjects given to them by the professors. At the same time, all naval officers will be permitted to attend the courses of instruction when their professional duties do not call them away.

The course of study is to occupy two terms, each of twelve months' duration, with a vacation of three months for practical exercises.

The subjects for the first term are:—Mathematics, natural philosophy, chemistry, the theory of naval war in all its branches, military tactics in as far as disembarkations are concerned, coast surveying, the theory of the formation of coasts, coastal defenses, field fortification, the constitution of military courts, the principles of international, military, and naval law, the system of administration, sanitary science, especially with reference to life aboard ship and in different climates, the elements of logic, ethics, &c.

The following subjects will be included in the second term:—Nautical astronomy, geodesy, theory of maps and charts, the history of war, with especial reference to naval war, artillery, ship-building, the construction of steam-engines (with practical exercises), the position and construction of naval ports, physical geography, the elements of geology, marine botany and zoölogy, and the general history of modern literature and civilization, &c.

SCHOOL AND TEACHER IN ENGLISH LITERATURE.

POPE—SOUTH—STEELE.

ALEXANDER POPE.—1688-1744.

ALEXANDER POPE was born in Lombard street, London, May 22, 1688. Both his parents were respectably connected—the father was a linen merchant, who amassed, even under the disadvantages which then environed a Roman Catholic trader, a moderate fortune, and the mother was of an ancient family, "as well born," said the son in his defiant letter to Lord Harvey, "as well born and educated as that lady whom your lordship made choice of to be the mother of your own children"—and both assiduous and affectionate in their care and nurture of an only son born to a delicate and sickly frame. His education, partly owing to the disabilities and prejudices which were attached to a Catholic pupil in the public schools and universities of England at that time, was mainly domestic. He was for a while under the tuition of a priest, who taught him the rudiments of Latin and Greek together, and subsequently, between 10 and 12 years of age, at a celebrated Catholic seminary at Twyford, near Winchester, where he read Homer and Ovid, in translations. From the age of twelve to nineteen he educated himself mainly through books, and natural scenery—getting not much grammatical training of the language, but familiarizing himself with the best authors in Latin, Greek, French and Italian literature—Homer, Virgil, Tasso, and Racine, through the original, in some, and translations in others, and not at the same time keeping himself ignorant of English poets. With Dryden, and all the niceties of his versification he was early familiar, and when he was only twelve years old, he was taken to town by a friend, specially to be introduced to that great master of vigorous English style. We shall not attempt even a reference to his works in which the flexibility, terseness and cadence of the English language are so wonderfully exhibited, but only introduce a picture of the education of his day, which has been pronounced "not too severely true."

PICTURE OF THE SCHOOLS AND THE UNIVERSITIES.

The Third Book of the Dunciad closes with a prophetic vision of the Progress of Dullness over the land, and a glimpse of her sons' ascendant in the seats of Arts and Sciences.

> Proceed, great days! till learning fly the shore,
> Till Birch shall blush with noble blood no more:
> Till Thames see Eton's sons for ever play,
> Till Westminster's whole year be holiday;
> Till Isis elders reel, their pupils sport,
> And Alma Mater lie dissolved in port!

The Fourth Book announces the completion of the prophecies by introducing the advent of the goddess coming in her majesty to destroy order and science, and to substitute the kingdom of the Dull upon earth. How she leads captive the sciences, and silences the muses; and what they be who succeed in their stead. All her children, by a wonderful attraction, are drawn about her; and bear along with them divers others, who promote her empire by connivance, weak resistance, or discouragements of arts; such as half-wits, tasteless admirers, vain pretenders, the flatterers of dunces, or the patrons of them. All these crowd around here; one of them offering to approach her, is driven back by a rival, but she commends and encourages both. The first who speak in form are the geniuses of the schools, who assure her of their care to advance her cause by confining youths to words, and keeping them out of real knowledge. Their address, and her gracious answer; with her charge to them and the universities. The universities appear by their proper deputies, and assure her that the same method is observed in the progress of education. The speech of Aristarchus on this subject. They are driven off by a band of young gentlemen returned from travel with their tutors; one of whom delivers to the goddess, a polite oration, an account of the whole conduct and fruits of their travels; presenting to her at the same time a young nobleman perfectly accomplished. She receives him graciously, and endures him with the happy quality of want of shame. She sees loitering about her a number of indolent persons abandoning all business and duty, and dying with laziness, to whom she recommends proper employments—to this the amusement of the antiquary, to that,of the virtuoso, and to others, the study of butterflies, shells, &c., with special caution not to proceed beyond trifles to any useful or extensive view of nature, or the Author of nature.

The youths thus instructed are oblivious of all obligations divine. civil, moral or rational.

Now crowds on crowds around the goddess press,
Each eager to present the first address.
Dunce scorning dunce beholds the next advance,
But fop shows fop superior complaisance.
When lo! a spectre rose, whose index hand
Held forth the virtue of the dreadful wand;
His beaver'd brow a birchen garland wears,
Dropping with infants' blood and mothers' tears.
O'er every vein a shuddering horror runs,
Eton and Winton shake through all their sons.
All flesh is humbled, Westminster's bold race
Shrink, and confess the Genius of the place:
The pale boy senator yet tingling stands,
And holds his breeches close with both his hands.
Then thus: 'Since man from beast by words is known,
Words are man's province, words we teach alone.
When reason doubtful, like the Samian letter,
Points him two ways (Y), the narrower is the better
Plac'd at the door of learning, youth to guide,
We never suffer it to stand too wide.
To ask, to guess, to know, as they commence,
As fancy opens the quick springs of sense,
We ply the memory, we load the brain,
Bind rebel wit, and double chain on chain,
Confine the thought, to exercise the breath,
And keep them in the pale of words till death.
Whate'er the talents, or howe'er design'd.
We hang one jingling padlock on the mind:
A poet the first day he dips his quill;
And what the last? a very poet still.
Pity! the charm works only in our wall,
Lost, lost too soon in yonder house or hall.*
There truant Wyndham every muse gave o'er
There Talbot sunk, and was a wit no more!
How sweet an Ovid, Murray was our boast!
How many marshals were in Pulteney lost!
Else sure some bard, to our eternal praise,
In twice ten thousand rhyming nights and days,
Had reached the work, the all that mortal can,
And South beheld that masterpiece of man.'†
'O, (cried the goddess) for some pedant reign!
Some gentle James, to bless the land again:
To stick the doctor's chair into the throne,

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* Parliament House and Westminster Hall.

† Dr. South, who declared that a perfect epigram was as difficult performance as an epic poem.

Give law to words, or war with words alone,
Senates and courts with Greek and Latin rule,
And turn the council to a grammar school!
For sure if Dullness sees a grateful day,
'Tis in the shade of arbitrary sway.
O! if my sons may learn one earthly thing,
Teach but that one, sufficient for a king;
That which my priests, and mine alone, maintain,
Which, as it dies, or lives, we fall or reign:
May you my Cam, and Isis, preach it long!
'"The right divine of kings to govern wrong."'
Prompt at the call, around the goddess roll
Broad hats, and hoods, and caps, a sable shoal:
Thick and more thick the black blockade extends,
A hundred head of Aristotle's friends.
Nor wert thou, Isis! wanting to the day:
[Though Christ Church long kept prudishly away]
Each stanch polemic, stubborn as a rock,
Each fierce logician, still expelling * Locke,
Came whip and spur, and dash'd through thin and thick,
On German Crousaz,† and Dutch Burgersdyck.
As many quit the streams that murmuring fall
To lull the sons of Margaret and Clare Hall,
Where Bentley late tempestous wont to sport
In troubled waters, but now sleeps in port.
Before them march'd that awful Aristarch;
Plough'd was his front with many a deep remark:
His hat, which never veil'd to human pride,
Walker ‡ with reverence took, and laid aside.
Low bow'd the rest: he, kingly, did but nod;
So upright quakers please both man and God,
'Mistress! dismiss that rabble from your throne:
Avaunt—is Aristarchus yet unknown?
Thy mighty scholiast, whose unwearied pains
Made Horace dull, and humbled Milton's strains.
Turn what they will to verse, their toil is vain,
Critics like me shall make it prose again.
Roman and Greek grammarians! know your better;
Author of something yet more great than letter;
While towering o'er your alphabet, like Saul,
Stands our digamma, and o'ertops them all.
'Tis true on words is still our whole debate,
Dispute of *me* or *te*, of *aut* or *at*,
To sound or sink in *cano*, O or A,
Or give up Cicero to C or K.

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* In the year 1703 there was a meeting of the heads of the University of Oxford, to censure Mr. Locke's Essay on the Human Understanding, and to forbid the reading of it.

† Author of the commentary on Pope's Essay on Man.

‡ Bentley's constant friend in college.

Let Freind * effect to speak as Terrence spoke
And Alsop never but like Horace joke:
For me, what Virgil, Pliny, may deny,
Manilius or Solinus shall supply:
For attic phrase in Plato let them seek,
I poach in Suidas for unlicens'd Greek.
In ancient sense if any needs will deal,
Be sure I give them fragments, not a meal;
What Gellius or Stobœus hash'd before,
Or chew'd by blind old scholiasts o'er and o'er,
The critic eye, that microscope of wit,
Sees hairs and pores, examines bit by bit.
How parts relate to parts, or they to whole,
The body's harmony, the beaming soul,
Are things which Kuster, Burman, Wasse shall see,
When man's whole frame is obvious to a flea.
'Ah, think not, mistress! more true dullness lies
In folly's cap, than wisdom's grave disguise.
Like buoys, that never sink into the flood,
On learning's surface we but lie and nod;
Thine is the genuine head of many a house,
And much divinity without a Nous. (Νοῦς)
Nor could a Barrow work on every block,
Nor has one Atterbury spoiled the flock.
See! still thy own, the heavy cannon roll,
And metaphysic—smokes involve the pole.
For thee we dim the eyes, and stuff the head
With all such reading as was never read:
For thee explain a thing till all men doubt it,
And write about it, goddess, and about it:
So spins the silkworm small its slender store,
And labors till it clouds itself all o'er.
'What though we let some better sort of fool
Thrid every science, run through every school?
Never by tumbler through the hoops was shown
Such skill in passing all, and touching none.
He may indeed (if sober all this time)
Plague with dispute, or persecute with rhyme.
We only furnish what he can not use,
Or wed to what he must divorce, a muse:
Full in the midst of Euclid dip at once,
And petrify a genius to a dunce:
Or, set on metaphysic ground to prance,
Show all his paces, not a step advance.
With the same cement, ever sure to bind,
We bring to one dead level every mind:
Then take him to develop, if you can,
And hew the block off, and get out the man.

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* Dr. Robert Freind, Master of Westminster School.

ROBERT SOUTH, D.D.—1627-1689.

In 1678, Dr. South prepared a sermon to be preached at a convention of such as had been bred at Westminster School, and which, without being preached, was published in a volume of sermons with a special dedication to the head-master, Dr. Robert Friend, "as a mark of his sacred gratitude to the sound training of that Royal Foundation—that seminary of learning, loyalty, and religion." The whole aim of the discourse is to illustrate and enforce the doctrine, that the virtuous education of youth is the surest if not the only way to a happy and honorable old age—meaning by education, "the training up of a child in the way he should go—the inculcation of sound knowledge, and the habit of walking in the right path." The duty of this training devolves on 1, Parents; 2, Schoolmasters; and 3, the Clergy.

DUTY OF PARENTS.

Jewish fathers professedly take upon themselves the guilt of all their childrens' sins till they come to be thirteen years old, and the faith of the family is diligently taught when they sit in the house, and walk by the way, when they lie down, and when they rise up, and thus work into the thread of their daily existence the precepts of their ancestral faith.

DUTY OF SCHOOLMASTERS.

I know not how it comes to pass that this honorable employment of training up of youth should find so little respect (as experience shows it does), from too many in the world. For there is no profession which has or can have a greater influence upon the public. Schoolmasters have a negative upon the peace and welfare of the kingdom. They are indeed the great depositories and keepers of the peace of it; as having the growing hopes and fears of the nation in their hands. The subjects generally are and will be such as they brand them. So that I look upon an able, well-principled schoolmaster as one of the most meritorious subjects in any power's dominions that can be; and every such school under such a master, as a seminary of loyalty, and a mining of allegiance. Nay, I take schoolmasters to have a more powerful influence upon the spirits of men than preachers themselves. It being seldom found, that the pulpit mends what the school has marred: and impressions on young and tender minds are the most certain for good or evil.

(1.) Let the educators of youth remember that excellent and never-to-be-forgotten advice, "that boys will be men;" and that the memory of all base usage will sink so deep into, and grow up so inseparably with them, that it will not be so much as in their own power ever to forget it. For though indeed schoolmasters are a sort of kings, yet they can not always pass such acts of oblivion as shall operate upon their scholars, or perhaps, in all things, indemnify themselves.

(2.) Where they find a youth of spirit, let them endeavor to govern that spirit without extinguishing it; to bend it, without breaking it; for when it comes once to be extinguished, and broken, and lost, it is not in the power or

Walker! our hat—nor more he deign'd to say,
But, stern as Ajax' specter, strode away.
The sire saw, one by one, his virtues wake:
The mother begg'd the blessing of a rake.
Thou gav'st that ripeness, which so soon began,
And ceased so soon, he ne'er was boy, nor man.
Thro' school and college, thy kind cloud o'ercast,
Safe and unseen the young Æneas past:
Thence bursting glorious, all at once let down,
Stunn'd with his giddy larum half the town.
Led by my hand, he saunter'd Europe round,
And gather'd ev'ry vice on Christian ground;
Saw ev'ry court, heard ev'ry King declare
His royal sense, of op'ra's or the fair;
The stews and palace equally explor'd,
Intrigu'd with glory, and with spirit whor'd;
Try'd all *hors-d'-œuvers*, all *liqueurs* defin'd,
Judicious drank, and greatly-daring din'd;
Dropt the dull lumber of the Latin store,
Spoil'd his own language, and acquir'd no more;
All classic learning lost on classic ground;
And last turn'd *Air*, the echo of a sound!
  Then thick as locusts black'ning all the ground,
A tribe, with weeds and shells fantastic crown'd
Each with some wondrous gift approach'd the pow'r,
A nest, a toad, a fungus, or a flow'r.
But far the foremost, two, with earnest zeal,
And aspect ardent to the throne appeal.
  The first thus open'd: Hear thy suppliant's call,
Great queen, and common mother of us all!
Fair from its humble bed I rear'd this flow'r,
Suckled, and cheer'd, with air, and sun, and show'r.
Soft on the paper ruff its leaves I spread,
Bright with the gilded button tipt its head.
Then thron'd in glass, and nam'd it CAROLINE:
Each maid cry's Charming! and each youth, Divine!
  My sons! (she answer'd), both have done your parts:
Live happy both, and long promote our arts.
But hear a mother, when she recommends
To your fraternal care our sleeping friends.
The common soul, of Heaven's most frugal make,
Serves but to keep fools pert, and knaves awake:
A drowsy watchman, that just gives a knock,
And breaks our rest, to tell us what's a-clock.
Yet by some object ev'ry brain is stirr'd;
The dull may waken to a humming-bird;
The most recluse, discreetly open'd, find
Congenial matter in the cockle kind;
The mind, in metaphysics at a loss,
May wander in a wilderness of moss;
The head that turns at super-lunar things,
Poiz'd with a tail, may steer on Wilkins' wings.
  O! would the sons of men once think their eyes
And reason giv'n them but to study *flies!*
See Nature in some partial narrow shape,
And let the author of the whole escape:
Learn but to trifle; or, who most observe,
To wonder at their Maker, not to serve.
We nobly take the high Priori road,
And reason downward, till we doubt of God:
Make nature still encroach upon his plan;
And shove him off as far as e'er we can.

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(2.) Where they find a youth of spirit, let them endeavor to govern that spirit without extinguishing it; to bend it, without breaking it; for when it comes once to be extinguished, and broken, and lost, it is not in the power or art of man to recover it; and then (believe it) no knowledge of nouns and pronouns, syntaxes and prosodia, can ever compensate or make amends for such a loss. The French, they say, are exceedingly happy at this, who will instruct a youth of spirit to a decent boldness, tempered with a due modesty; which two qualities in conjunction do, above all others, fit a man both for business and address. But for want of this art, some schools have ruined more good wits than they have improved; and even those which they have sent away with some tolerable improvement, like men escaped from a shipwreck, carry off only the remainder of those natural advantages which in much greater plenty they had brought with them.

(3.) Let not the chastisement of the body be managed so as to make a wound which shall rankle and fester in the very soul. That is, let not children, whom nature itself would bear up by an innate, generous principle of emulation, be exposed, cowed, and depressed with scoffs, contumelies (founded perhaps upon the master's own guilt) to the scorn and contempt of their equals and emulators. For this is, instead of rods, to chastise them with scorpions; and is the most direct way to stupefy and besot, and make them utterly regardless of themselves and of all that is praiseworthy; besides that, it will be sure to leave in their minds such inward regrets as are never to be qualified or worn off. It is very indecent for a master to jest or play with his scholars; but not only indecent, but very dangerous too, in such a way to play upon them.

(4.) And lastly, let it appear in all acts of penal animadversion, that the person is loved while his fault is punished; nay, that one is punished only out of love to the other; and (believe it) there is hardly any one so much a child, but has sagacity enough to perceive this. Let no melancholy fumes and spites and secret animosities pass for discipline. Let the master be as angry for the boy's fault as reason will allow him; but let not the boy be in fault, only because the master has a mind to be angry. In a word, let not the master have the spleen, and the scholars be troubled with it. But above all, let not the sins, or faults, or wants of the parents be punished upon the children; for that is a prerogative which God has reserved to himself.

These things I thought fit to remark about the education and educators of youth in general, not that I have any thoughts or desires of invading their province; but possibly a stander-by may sometimes look as far into the game as he who plays it; and with no less judgment, because with much less concern.

DUTY OF THE CLERGY.

The third and last sort of persons concerned in the great charge of instructing youth are the clergy. For as parents deliver their children to the schoolmaster, so the schoolmaster delivers them to the minister. And for my own part, I never thought a pulpit, a cushion, and an hour-glass such necessary means of salvation, but that much of the time and labor which is spent about them, might be much more profitably bestowed in catechising youth from the desk; preaching being a kind of spiritual diet, upon which people are always feeding, but never full; and many poor souls, God knows, are too like Pharaoh's lean kine, much the leaner for their full feed.

[The author of this discourse was a deadly foe to "the Rebellion," its actors and abettors, and the application of his sound principle, is to the utter extirpation of the deed, as well as the peril of that great political and religious movement. He thinks the rebellion could not have happened if parents, teachers, and clergy had done their duty to the youth of the realm.]

SIR RICHARD STEELE.—1675-1729.

Richard Steele was born in Dublin, in 1675, his father an Englishman, being secretary to the first Duke of Ormond, and his mother an Irishwoman. On the death of his father he was placed by the Duke, who was one of the governors, in the Charter House School, London, where he remained till he was 17, and where he made the acquaintance of Joseph Addison, which ripened into a friendship that survived all the jealousies and disturbances of similar pursuits.in literature and politics. They were comrades in the University (Oxford), which Steele left without a degree, for a soldier's career, which, after attaining the rank of Captain, he abandoned for the precarious support of letters and politics.

Through the influence of Addison with the Government, he obtained the appointment of Gazetteer, and in 1709, (April 12) under the name of Isaac Bickerstaff, he began the Tatler, which was discontinued in January 1711; and in March of the same year he commenced with Addison the publication of the Spectator; and in March, 1713, issued the first number of the Guardian—works which have passed into the family reading, wherever the English language is spoken. His ready and versatile pen contributed largely to the interests of those essays. He was elected to Parliament in 1715, and was knighted by the King, for his vigorous defense of the House of Hanover. He was married in 1707, and his correspondence with his wife exhibits his character as most amiable, as well as eccentric. He died Sept. 1, 1729.

FLOGGING IN THE PUBLIC SCHOOLS.

I must confess I have very often, with much sorrow, bewailed the misfortune of the children of Great Britain, when I consider the ignorance and undiscerning of the generality of schoolmasters. The boasted liberty we talk of is but a mean reward for the long servitude, the many heartaches and terrors, to which our childhood is exposed in going through a Grammar School. Many of these stupid tyrants exercise their cruelty without any manner of distinction of the capacities of children, or the intention of parents in their behalf. There are many excellent tempers which are worthy to be nourished and cultivated with all possible diligence and care, that were never designed to be acquainted with Aristotle, Tully, or Virgil; and there are as many who have capacities for understanding every word those great persons have writ, and yet were not born to have any relish of their writings.

For want of this common and obvious discerning in those who have the care of youth, we have so many hundred unaccountable creatures every age whipped up into great scholars, that are forever near a right understanding, and will never arrive at it. These are the scandal of letters, and these are generally the men who are to teach others. The sense of shame and honor is enough to keep the world itself in order without corporal punishment, much more to train the minds of uncorrupted and innocent children. It happens, I doubt not, more than once in a year, that a lad is chastised for a blockhead, when it is good apprehension that makes him incapable of knowing what his teacher means. A brisk imagination very often may suggest an error, which a lad could not have fallen into, if he had been as heavy in conjecturing as his master in explaining. But there is no mercy even towards a wrong interpretation of his meaning: the sufferings of the scholar's body are to rectify the mistakes of his mind.

I am confident that no boy, who will not be allured to letters without blows, will ever be brought to any thing with them. A great or good mind must necessarily be the worse for such indignities, and it is a sad change to lose of its virtue for the improvement of its knowledge. No one who has gone through what they call a great school, but must remember to have seen children of excellent and ingenuous natures, as has afterward appeared in their manhood—I say no man who has passed through this way of education but must have seen an ingenuous creature, expiring with shame, with pale looks, beseeching sorrow, and silent tears, throw up its honest eyes, and kneel on its tender knees to an inexorable blockhead to be forgiven the false quantity of a word in making a Latin verse. The child is punished, and the next day he commits a like crime, and so a third with the same consequence. I would fain ask any reasonable man whether this lad, in the simplicity of his native innocence, full of shame, and capable of any impression from that grace of soul, was not fitter for any purpose in this life, than after that spark of virtue is extinguished in him, though he is able to write twenty verses in an evening? . . .

It is wholly to this dreadful practice that we may attribute a certain hardiness and ferocity which some men, though liberally educated, carry about them in all their behavior. To be bred like a gentleman, and punished like a malefactor, must, as we see it does, produce that illiberal sauciness which we see sometimes in men of letters. . . .

It is, methinks, a very melancholy consideration, that a little negligence can spoil us, but great industry is necessary to improve us; the most excellent natures are soon depreciated, but evil tempers are long before they are exalted into good habits. To help this by punishments, is the same thing as killing a man to cure him of a distemper. When he comes to suffer punishment in that one circumstance, he is brought below the existence of a rational creature, and is in the state of a brute that moves only by the admonition of stripes. But since this custom of educating by the lash is suffered by the gentry of Great Britain, I would prevail only that honest, heavy lads may be dismissed from slavery sooner than they are at present, and not whipped on to their fourteenth or fifteenth year, whether they expect any progress from them or not. Let the child's capacity be forthwith examined, and he sent to some mechanic way of life, without respect to his birth, if nature designed him for nothing higher: let him go before he has innocently suffered and is debased into a dereliction of mind, for being what it is no guilt to be—a plain man. I would not here be supposed to have said, that our learned men of either robe, who have been whipped at school, are not still men of noble and liberal minds; but I am sure they would have been much more so than they are, had they never suffered that infamy.—*Spectator*, No. 20.

ESSAY ON EDUCATION.[*]

BY OLIVER GOLDSMITH.

As few subjects are more interesting to society, so few have been more frequently written upon, than the education of youth. Yet is it not a little surprising, that it should have been treated almost by all in a declamatory manner? They have insisted largely on the advantages that result from it, both to the individual and to society, and have expatiated in the praise of what no one has ever been so hardy as to call in question.

Instead of giving us fine but empty harangues upon this subject, instead of indulging each his particular and whimsical system, it had been much better if the writers on this subject had treated it in a more scientific manner, repressed all the sallies of imagination, and given us the result of their observations with didactic simplicity. Upon this subject the smallest errors are of the most dangerous consequence; and the author should venture the imputation of stupidity upon a topic, where his slightest deviations may tend to injure the rising generation.

I shall, therefore, throw out a few thoughts upon this subject, which have not been attended to by others, and shall dismiss all attempts to please, while I study only instruction.

The manner in which our youth of London are at present educated is, some in free schools in the city, but the far greater number in boarding schools about town. The parent justly consults the health of his child, and finds that an education in the country tends to promote this much more than a continuance in the town. Thus far they are right: if there were a possibility of having even our free schools kept a little out of town, it would certainly conduce to the health and vigor of perhaps the mind as well as of the body. It may be thought whimsical, but it is truth,—I have found by experience, that they who have spent all their lives in cities, contract not only an effeminacy of habit, but even of thinking.

But when I have said, that the boarding schools are preferable to free schools, as being in the country, this is certainly the only advantage I can allow them; otherwise it is impossible to conceive the ignorance of those who take upon them the important trust of education. Is any man unfit for any of the professions? he finds his last resource in setting up school. Do any become bankrupts in trade? they still set up a boarding school, and drive a trade this way, when all others fail: nay, I have been told of butchers and barbers, who have turned schoolmasters; and, more surprising still, made fortunes in their new professions.

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[*] This Essay was originally published in the Bee, No. VI, Nov. 10th, 1759. It was afterwards introduced by the author into a volume of Essays with the following observation: "This Treatise was published before Rousseau's "*Emilius:*" if there be a similitude in any instance, it is hoped that the author of the present essay will not be termed a plagiarist." In this reprint we follow Bohn's Edition of the "Works of Oliver Goldsmith." 4 vols. London. 1854.

Could we think ourselves in a country of civilized people—could it be conceived that we have any regard for posterity, when such are permitted to take the charge of the morals, genius, and health of those dear little pledges, who may one day be the guardians of the liberties of Europe, and who may serve as the honor and bulwark of their aged parents? The care of our children, is it below the state? is it fit to indulge the caprice of the ignorant with the disposal of their children in this particular? For the state to take the charge of all its children, as in Persia or Sparta, might at present be inconvenient; but surely with great ease it might cast an eye to their instructors. Of all members of society, I do not know a more useful or a more honorable one, than a schoolmaster; at the same time that I do not see any more generally despised, or whose talents are so ill rewarded.

Were the salaries of schoolmasters to be augmented from a diminution of useless sinecures, how might it turn to the advantage of this people—a people whom, without flattery, I may in other respects term the wisest and greatest upon earth! But, while I would reward the deserving, I would dismiss those utterly unqualified for their employment: in short, I would make the business of a schoolmaster every way more respectable, by increasing their salaries, and admitting only men of proper abilities.

There are already schoolmasters appointed, and they have some small salaries; but where at present there is but one schoolmaster appointed, there should at least be two; and wherever the salary is at present twenty pounds, it should be a hundred. Do we give immoderate benefices to those who instruct ourselves, and shall we deny even subsistence to those who instruct our children? Every member of society should be paid in proportion as he is necessary: and I will be bold enough to say, that schoolmasters in a state are more necessary than clergymen, as children stand in more need of instruction than their parents.

But, instead of this, as I have already observed, we send them to board in the country to the most ignorant set of men that can be imagined. But lest the ignorance of the master be not sufficient, the child is generally consigned to the usher. This is generally some poor needy animal, little superior to a footman either in learning or spirit, invited to his place by an advertisement, and kept there merely from his being of a complying disposition, and making the children fond of him. "You give your child to be educated to a slave," says a philosopher to a rich man; "instead of one slave, you will then have two."

It were well, however, if parents, upon fixing their children in one of these houses, would examine the abilities of the usher as well as of the master; for, whatever they are told to the contrary, the usher is generally the person most employed in their education. If, then, a gentleman, upon putting out his son to one of these houses, sees the usher disregarded by the master, he may depend upon it, that he is equally disregarded by the boys; the truth is, in spite of all their endeavors to please, they are generally the laughingstock of the school. Every trick is played upon the usher; the oddity of his manners, his dress, or his language, is a fund of eternal ridicule; the master himself now and then cannot avoid joining in the laugh, and the poor wretch, eternally resenting this ill usage, seems to live in a state of war with all the family. This is a very proper person, is it not, to give children a relish for learning? They must esteem learning very much, when they see its professors used with such ceremony! If the usher be despised, the father may be assured his child will never be properly instructed.*

But let me suppose, that there are some schools without these inconveniences,—where the master and ushers are men of learning, reputation, and assiduity. If there are to be found such, they can not be prized in a state sufficiently. A boy will learn more true wisdom in a public school in a year, than by a private education in five. It is not from masters, but from their equals, youth learn a knowledge of the world: the little tricks they play each other, the punishment that frequently attends the commission, is a just picture of the great world; and all the ways of men are practiced in a public school in miniature. It is true, a child is early made acquainted with some vices in a school, but it is better to know these when a boy, than be first taught them when a man, for their novelty then may have irresistible charms.

In a public education boys early learn temperance; and if the parents and friends would give them less money upon their usual visits, it would be much to their advantage, since it may justly be said, that a great part of their disorders arise from surfeit,—*plus occidit gula quam gladius.* And now I am come to the article of health, it may not be amiss to observe, that Mr. Locke and some others have advised, that children should be inured to cold, to fatigue, and hardship, from their youth; but Mr. Locke was but an indifferent physician. Habit, I grant, has great influence over our constitutions, but we have not precise ideas upon this subject.

We know that, among savages, and even among our peasants, there are found children born with such constitutions, that they cross rivers by swimming, endure cold, thirst, hunger, and want of sleep, to a surprising degree; that when they happen to fall sick, they are cured, without the help of medicine, by nature alone. Such examples are adduced, to persuade us to imitate their manner of education, and accustom ourselves betimes to support the same fatigues. But had these gentlemen considered, first, that those savages and peasants are generally not so longlived as they who have led a more indolent life; secondly, that the more laborious the life is, the less populous is the country: had they considered, that what physicians call the *stamina vitæ*, by fatigue and labor become rigid, and thus anticipate old age; that the number who survive those rude trials, bears no proportion to those who die in the experiment: had these things been properly considered, they would not have thus extolled an education begun in fatigue and hardships. Peter the Great, willing to inure the children of his seamen to a life of hardship, ordered that they should drink only sea water, but they unfortunately all died under the experiment.

But while I would exclude all unnecessary labors, yet still I would recommend temperance in the highest degree. No luxurious dishes with high seasoning, nothing given children to force an appetite, as little sugared or salted provisions as possible, though never so pleasing; but milk, morning and night, should be their constant food. This diet would make them more healthy than any of those slops that are usually cooked by the mistress of a boarding school;

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* The author's remarks upon this subject are the more worthy of attention, that he himself knew by experience the duties and annoyances of such a situation.—*Bohn.*

besides, it corrects any consumptive habits, not unfrequently found amongst the children of city parents.

As boys should be educated with temperance, so the first greatest lesson that should be taught them is, to admire frugality. It is by the exercise of this virtue alone, they can ever expect to be useful members of society. It is true, lectures continually repeated upon this subject, may make some boys, when they grow up, run into an extreme, and become misers; but it were well had we more misers than we have among us. I know few characters more useful in society; for a man's having a larger or smaller share of money lying useless by him no way injures the commonwealth; since, should every miser now exhaust his stores, this might make gold more plenty, but it would not increase the commodities or pleasures of life; they would still remain as they are at present: it matters not, therefore, whether men are misers or not, if they be only frugal, laborious, and fill the station they have chosen. If they deny themselves the necessaries of life, society is no way injured by their folly.

Instead, therefore, of romances, which praise young men of spirit, who go through a variety of adventures, and, at last, conclude a life of dissipation, folly, and extravagance, in riches and matrimony, there should be some men of wit employed to compose books that might equally interest the passions of our youth; where such a one might be praised for having resisted allurements when young, and how he, at last, became lord mayor—how he was married to a lady of great sense, fortune, and beauty: to be as explicit as possible, the old story of Whittington, were his cat left out, might be more serviceable to the tender mind than either Tom Jones, Joseph Andrews, or a hundred others, where frugality is the only good quality the hero is not possessed of. Were our schoolmasters, if any of them had sense enough to draw up such a work, thus employed, it would be much more serviceable to their pupils, than all the grammars and dictionaries they may publish these ten years.

Children should early be instructed in the arts, from which they would afterwards draw the greatest advantages. When the wonders of nature are never exposed to our view, we have no great desire to become acquainted with those parts of learning which pretend to account for the phenomena. One of the ancients complains, that as soon as young men have left school, and are obliged to converse in the world, they fancy themselves transported into a new region: "*Ut cum in forum venerint existiment se in aliam terrarum orbem delatos.*" We should early, therefore, instruct them in the experiments, if I may so express it, of knowledge, and leave to maturer age the accounting for the causes. But instead of that, when boys begin natural philosophy in colleges, they have not the least curiosity for those parts of the science which are proposed for their instruction; they have never before seen the phenomena, and consequently have no curiosity to learn the reasons. Might natural philosophy, therefore, be made their pastime in school, by this means it would in college become their amusement.

In several of the machines now in use, there would be ample field both for instruction and amusement: the different sorts of the phosphorus, the artificial pyrites, magnetism, electricity, the experiments upon the rarefaction and weight of the air, and those upon elastic bodies, might employ their idle hours, and none should be called from play to see such experiments but such as thought proper. At first, then, it would be sufficient if the instruments, and the effects of their combination, were only shown; the causes should be deferred to a maturer age, or to those times when natural curiosity prompts us to discover the wonders of nature. Man is placed in this world as a spectator; when he is tired with wondering at all the novelties about him, and not till then, does he desire to be made acquainted with the causes that create those wonders.

What I have observed with regard to natural philosophy, I would extend to every other science whatsoever. We should teach them as many of the facts as were possible, and defer the causes until they seemed of themselves desirous of knowing them. A mind thus leaving school stored with all the simple experiences of science, would be the fittest in the world for the college course; and though such a youth might not appear so bright, or so talkative, as those who had learned the real principles and causes of some of the sciences, yet he would make a wiser man, and would retain a more lasting passion for letters, than he who was early burdened with the disagreeable institution of effect and cause.

In history, such stories alone should be laid before them as might catch the imagination: instead of this, they are too frequently obliged to toil through the four empires, as they are called, where their memories are burdened by a number of disgusting names, that destroy all their future relish for our best historians, who may be termed the truest teachers of wisdom.

Every species of flattery should be carefully avoided: a boy, who happens to say a sprightly thing, is generally applauded so much, that he happens to continue a coxcomb sometimes all his life after. He is reputed a wit at fourteen, and becomes a blockhead at twenty. Nurses, footmen, and such, should therefore be driven away as much as possible. I was even going to add, that the mother herself should stifle her pleasure or her vanity, when little master happens to say a good or smart thing. Those modest lubberly boys who seem to want spirit, generally go through their business with more ease to themselves, and more satisfaction to their instructors.

There has of late a gentleman appeared, who thinks the study of rhetoric essential to a perfect education.* That bold male eloquence, which often without pleasing convinces, is generally destroyed by such institutions. Convincing eloquence, however, is infinitely more serviceable to its possessor than the most florid harangue, or the most pathetic tones that can be imagined; and the man who is thoroughly convinced himself, who understands his subject, and the language he speaks in, will be more apt to silence opposition, than he who studies the force of his periods, and fills our ears with sounds, while our minds are destitute of conviction.

It was reckoned the fault of the orators at the decline of the Roman empire, when they had been long instructed by rhetoricians, that their periods were so harmonious, as that they could be sung as well as spoken. What a ridiculous figure must one of these gentlemen cut, thus measuring syllables, and weighing words, when he should plead the cause of his client! Two architects were once candidates for the building a certain temple at Athens: the first harangued the crowd very learnedly upon the different orders of architecture, and showed them in what manner the temple should be built; the other, who got up to speak after him, only observed, that what his brother had spoken he could do; and thus he at once gained his cause.

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* Probably Mr. Thomas Sheridan, who about this time read lectures on rhetoric and elocution.—*Bohn.*

To teach men to be orators, is little less than to teach them to be poets; and for my part, I should have too great a regard for my child, to wish him a manor only in a bookseller's shop.

Another passion which the present age is apt to run into, is to make children learn all things,—the languages, the sciences, music, the exercises, and painting. Thus the child soon becomes a *talker* in all, but a *master* in none. He thus acquires a superficial fondness for every thing, and only shows his ignorance when he attempts to exhibit his skill.

As I deliver my thoughts without method or connection, so the reader must not be surprised to find me once more addressing schoolmasters on the present method of teaching the learned languages, which is commonly by literal translations. I would ask such, if they were to travel a journey, whether those parts of the road in which they found the greatest difficulties would not be most strongly remembered? Boys who, if I may continue the allusion, gallop through one of the ancients with the assistance of a translation, can have but a very slight acquaintance either with the author or his language. It is by the exercise of the mind alone that a language is learned; but a literal translation, on the opposite page, leaves no exercise for the memory at all. The boy will not be at the fatigue of remembering, when his doubts are at once satisfied by a glance of the eye; whereas, were every word to be sought from a dictionary, the learner would attempt to remember, in order to save him the trouble of looking out for it for the future.

To continue in the same pedantic strain, though no schoolmaster, of all the various grammars now taught in schools about town, I would recommend only the old common one; I have forgot whether Lilly's, or an emendation of him. The others may be improvements; but such improvements seem to me only mere grammatical niceties, no way influencing the learner, but perhaps loading him with trifling subtleties, which at a proper age he must be at some pains to forget.

Whatever pains a master may take to make the learning of the languages agreeable to his pupil, he may depend upon it, it will be at first extremely unpleasant. The rudiments of every language, therefore, must be given as a task, not as an amusement. Attempting to deceive children into instruction of this kind, is only deceiving ourselves; and I know no passion capable of conquering a child's natural laziness but fear. Solomon has said it before me; nor is there any more certain, though perhaps more disagreeable truth, than the proverb in verse, too well known to repeat on the present occasion. It is very probable that parents are told of some masters who never use the rod, and consequently are thought the properest instructors for their children; but though tenderness is a requisite quality in an instructor, yet there is too often the truest tenderness in well-timed correction.

Some have justly observed, that all passion should be banished on this terrible occasion; but, I know not how, there is a frailty attending human nature, that few masters are able to keep their temper whilst they correct. I knew a good-natured man, who was sensible of his own weakness in this respect, and consequently had recourse to the following expedient to prevent his passions from being engaged, yet at the same time administer justice with impartiality. Whenever any of his pupils committed a fault, he summoned a jury of his peers,—I mean of the boys of his own or the next classes to him; his accusers stood forth; he had a liberty of pleading in his own defense, and one or two more had a liberty of pleading against him: when found guilty by the panel, he was consigned to the footman who attended in the house, who had previous orders to punish, but with lenity. By this means the master took off the odium of punishment from himself; and the footman, between whom and the boys there could not be even the slightest intimacy, was placed in such a light as to be shunned by every boy in the school.

And now I have gone thus far, perhaps you will think me some pedagogue, willing, by a well-timed puff, to increase the reputation of his own school; but such is not the case. The regard I have for society, for those tender minds who are the objects of the present essay, is the only motive I have for offering those thoughts, calculated not to surprise by their novelty, or the elegance of composition, but merely to remedy some defects which have crept into the present system of school education.

[To the foregoing "*Essay on Education*" we add a few detached thoughts selected from other publications and letters by the same author.]

HOME EDUCATION. ROMANCE READING. FRUGALITY.

The reasons you have given me for breeding up your son a scholar are judicious and convincing; I should, however, be glad to know for what particular profession he is designed. If he be assiduous, and divested of strong passions, (for passions in youth always lead to pleasure,) he may do very well in your college; for, it must be owned, that the industrious poor have good encouragement there, perhaps better than in any other in Europe. But, if he has ambition, strong passions, and an exquisite sensibility of contempt, do not send him there, unless you have no other trade for him except your own. It is impossible to conceive how much may be done by a proper education at home. A boy, for instance, who understands perfectly well Latin, French, Arithmetic, and the principles of the civil law, and can write a fine hand, has an education that may qualify him for any undertaking. And these parts of learning should be carefully inculcated, let him be designed for whatever calling he will. Above all things, let him never touch a romance or novel; those paint beauty in colors more charming than nature, and describe happiness that man never tastes. How delusive, how destructive, are those pictures of consummate bliss! They teach the youthful mind to sigh after beauty and happiness which never existed; to despise the little good which fortune has mixed in our cup, by expecting more than she ever gave; and in general, take the word of a man who has seen the world, and has studied human nature more by experience than precept—take my word for it, I say, that books teach us very little of the world. The greatest merit in a state of poverty would only serve to make the possessor ridiculous; may distress, but can not relieve him. Frugality, and even avarice, in the lower orders of mankind, are true ambition. These afford the only ladder for the poor to rise to preferment. Teach, then, my dear Sir, to your son thrift and economy. Let his poor wandering uncle's example be placed before his eyes. I had learned from books to be disinterested and generous, before I was taught from experience the necessity of being prudent. I had contracted the habits and notions of a philosopher, while I was exposing myself to the insidious approaches of cunning; and often by being, even with my narrow finances, charitable to excess, I forgot the rules of justice, and placed myself in the very situation of the wretch who thanked me for my bounty. When I am in the remotest part of the world, tell him this, and perhaps he may improve from my example.—*Letter to Rev. Henry Goldsmith.* 1759.

SELF-KNOWLEDGE AND SELF-GOVERNMENT.

In the various objects of knowledge, which I have had the pleasure of seeing you study under my care, as well as those which you have acquired under the various teachers who have hitherto instructed you, the most material branch of information which it imports a human being to know, has been entirely overlooked,—I mean the knowledge of yourself. There are, indeed, very few persons who possess at once the capability and the disposition to give you this instruction. Your parents, who alone are perhaps sufficiently acquainted with you for the purpose, are usually disqualified for the task, by the very affection and partiality which would prompt them to undertake it. Your masters, who probably labor under no such prejudices, have seldom either sufficient opportunities of knowing your character, or are so much interested in your welfare, as to undertake an employment so unpleasant and laborious. You are, as yet, too young and inexperienced to perform this important office for yourself, or, indeed, to be sensible of its very great consequence to your happiness. The ardent hopes and the extreme vanity natural to early youth, blind you at once to every thing within and every thing without, and make you see both yourself and the world in false colors. This illusion, it is true, will gradually wear away as your reason matures, and your experience increases; but the question is, what is to be done in the meantime? Evidently there is no plan for you to adopt but to make use of the reason and experience of those who are qualified to direct you.

Of this, however, I can assure you, both from my own experience, and from the opinions of all those whose opinions deserve to be valued, that if you aim at any sort of eminence or respectability in the eyes of the world, or in those of your friends; if you have any ambition to be distinguished in your future career for your virtues, or talents, or accomplishments, this self-knowledge of which I am speaking is above all things requisite. For how is your moral character to be improved, unless you know what are the virtues and vices which your natural disposition is calculated to foster, and what are the passions which are most apt to govern you? How are you to attain eminence in any talent or pursuit, unless you know in what particular way your powers of mind best capacitate you for excelling? It is therefore my intention, in this letter, to offer you a few hints on this most important subject.

When you come to look abroad into the world, and to study the different characters of men, you will find that the happiness of any individual depends not, as you would suppose, on the advantages of fortune or situation, but principally on the regulation of his own mind. If you are able to secure tranquillity within, you will not be much annoyed by any disturbance without. The great art of doing this consists in a proper government of the passions—in taking care that no propensity is suffered to acquire so much power over your mind as to be the cause of immoderate uneasiness, either to yourself or others. I insist particularly on this point, my dear young friend, because, if I am not greatly deceived, you are yourself very much disposed by nature to two passions, the most tormenting to the possessor, and the most offensive to others, of any which afflict the human race,—I mean pride and anger. Indeed, those two dispositions seem to be naturally connected with each other; for you have probably remarked, that most proud men are addicted to anger, and that most passionate men are also proud. Be this as it may, I can confidently assure you, that if an attempt is not made to subdue those uneasy propensities now when your temper is flexible, and your mind easy of impression, they will most infallibly prove the bane and torment of your whole life. They will not only destroy all possibility of your enjoying any happiness yourself, but they will produce the same effect on those about you; and by that means you will deprive yourself both of the respect of others, and the approbation of your own heart,—the only two sources from which can be derived any substantial comfort, or real enjoyment.

It is, moreover, a certain principle in morals, that all the bad passions, but especially those of which we are speaking, defeat, in all cases, their own purposes,—a position which appears quite evident, on the slightest examination. For what is the object which the proud man has constantly in view? Is it not to gain distinction, and respect, and consideration among mankind? Now, it is unfortunately the nature of pride to aim at this distinction, not by striving to acquire such virtues and talents as would really entitle him to it, but by laboring to exalt himself above his equals by little and degrading methods; by endeavoring, for example, to outvie them in dress, or show, or expense, or by affecting to look down, with haughty superciliousness, on such as are inferior to himself only by some accidental advantages for which he is no way indebted to his own merit. The consequence of this is, that all mankind declare war against him; his inferiors, whom he affects to despise, will hate him, and consequently will exert themselves to injure and depress him; and his superiors, whom he attempts to imitate, will ridicule his absurd and unavailing efforts to invade what they consider as their own peculiar province.

If it may with truth be said, that a proud man defeats his own purposes, the same may, with equal certainty, be affirmed of a man who gives way to violence of temper. His angry invectives, his illiberal abuse, and his insulting language, produce very little effect on those who hear him, and who, perhaps, only smile at his infirmities; but who can describe the intolerable pangs of vexation, rage, and remorse, by which the heart of a passionate man is successively ravaged? Alas! it is himself alone for whom the storm is pent up, who is torn by its violence, and not those against whom its fury is meant to be directed.—*Letter to a Pupil.*

FOREIGN TRAVEL AND RESIDENCE AT A UNIVERSITY.

We seem divided, whether an education formed by traveling or by a sedentary life be preferable. We see more of the world by travel, but more of human nature by remaining at home; as in an infirmary, the student, who only attends to the disorders of a few patients, is more likely to understand his profession, than he who indiscriminately examines them all.

A youth just landed at the Brille resembles a clown at a puppet show; carries his amazement from one miracle to another; from this cabinet of curiosities to that collection of pictures: but wondering is not the way to grow wise.

Whatever resolutions we set ourselves not to keep company with our countrymen abroad, we shall find them broken when once we leave home. Among strangers we consider ourselves as in a solitude, and it is but natural to desire society.

There is more knowledge to be acquired from one page of the volume of mankind, if the scholar only knows how to read, than in volumes of antiquity. We grow learned, not wise, by too long continuance at college.

This points out the time in which we should leave the university. Perhaps the age of twenty-one, when at our universities the first degree is generally taken, is the proper period.

The universities of Europe may be divided into three classes. Those upon the old scholastic establishment, where the pupils are immured, talk nothing out Latin, and support every day syllogistical disputations in school philosophy. Would not one be apt to imagine this was the proper education to make a man a fool? Such are the universities of Prague, Louvain, and Padua. The second is, where the pupils are under few restrictions, where all scholastic jargon is banished, where they take a degree when they think proper, and live not in the college, but the city. Such are Edinburgh, Leyden, Gottingen, Geneva. The third is a mixture of the two former, where the pupils are restrained, but not confined; where many, though not all, the absurdities of scholastic philosophy are suppressed, and where the first degree is taken after four years' matriculation. Such are Oxford, Cambridge, and Dublin.

As for the first class, their absurdities are too apparent to admit of a parallel. It is disputed which of the two last are more conducive to national improvement.

Skill in the professions is acquired more by practice than study; two or three years may be sufficient for learning their rudiments. The universities of Edinburgh, &c., grant a license for practicing them when the student thinks proper, which our universities refuse till after a residence of several years.

The dignity of the professions may be supported by this dilatory proceeding; but many men of learning are thus too long excluded from the lucrative advantages, which superior skill has a right to expect.

Those universities must certainly be most frequented, which promise to give in two years, the advantages which others will not under twelve.

The man who has studied a profession for three years, and practiced it for nine more, will certainly know more of his business than he who has only studied it for twelve.

The universities of Edinburgh, &c., must certainly be most proper for the study of those professions in which men choose to turn their learning to profit as soon as possible.

The universities of Oxford, &c., are improper for this, since they keep the student from the world, which, after a certain time, is the only true school of improvement.

When a degree in the professions can be taken only by men of independent fortunes, the number of candidates in learning is lessened, and, consequently, the advancement of learning retarded.

This slowness of conferring degrees is a remnant of scholastic barbarity. Paris, Louvain, and those universities which still retain their ancient institutions, confer the doctor's degree slower even than we.

The statutes of every university should be considered as adapted to the laws of its respective government. Those should alter as these happen to fluctuate.

Four years spent in the arts, (as they are called in colleges,) is perhaps laying too laborious a foundation. Entering a profession without any previous acquisitions of this kind, is building too bold a superstructure.

Countries wear very different appearances to travelers of different circumstances. A man who is whirled through Europe in a post-chaise, and the pilgrim who walks the grand tour on foot, will form very different conclusions.[*]

To see Europe with advantage, a man should appear in various circumstances of fortune; but the experiment would be too dangerous for young men.

There are many things relative to other countries which can be learned to more advantage at home; their laws and policies are among the number.

The greatest advantages which result to youth from travel, are an easy address, the shaking off national prejudices, and the finding nothing ridiculous in national peculiarities.

The time spent in these acquisitions could have been more usefully employed at home. An education in a college seems therefore preferable.—*Present state of Polite Learning.* 1759.

CHARACTERISTICS OF DIFFERENT UNIVERSITIES.

We attribute to universities either too much or too little. Some assert that they are the only proper places to advance learning; while others deny even their utility in forming an education. Both are erroneous.

Learning is most advanced in populous cities, where chance often conspires with industry to promote it; where the members of this large university, if I may so call it, catch manners as they rise; study life, not logic, and have the world for correspondents.

The greatest number of universities have ever been founded in times of the greatest ignorance.

New improvements in learning are seldom adopted in colleges until admitted everywhere else. And this is right: we should always be cautious of teaching the rising generation uncertainties for truth. Thus, though the professors in universities have been too frequently found to oppose the advancement of learning, yet, when once established, they are the properest persons to diffuse it.

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[*] In the first edition our author added, *Haud inexpertus loquor*; for he traveled through France, &c., on foot. In his sketch of Baron Holberg, he gives an example of the advantages which may be derived by even a poor student from foreign travel.

"This was, perhaps, one of the most extraordinary personages that has done honor to the present century. His being the son of a private sentinel did not abate the ardor of his ambition, for he learned to read, though without a master. Upon the death of his father, being left entirely destitute, he was involved in all that distress which is common among the poor, and of which the great have scarcely any idea. However, though only a boy of nine years old, he still persisted in pursuing his studies, traveled about from school to school, and begged his learning and his bread. When at the age of seventeen, instead of applying himself to any of the lower occupations, which seem best adapted to such circumstances, he was resolved to travel for improvement from Norway, the place of his birth, to Copenhagen, the capital city of Denmark. He lived there by teaching French, at the same time avoiding no opportunity of improvement that his scanty funds could permit. But his ambition was not to be restrained, or his thirst of knowledge satisfied, until he had seen the world. Without money, recommendations, or friends, he undertook to set out upon his travels, and make the tour of Europe on foot. A good voice, and a trifling skill in music, were the only finances he had to support an undertaking so extensive; so he traveled by day, and at night sung at the doors of peasants' houses to get himself a lodging. In this manner, while yet very young, Holberg passed through France, Germany, and Holland; and coming over to England, took up his residence for two years in the university of Oxford. Here he subsisted by teaching French and music, and wrote his universal history, his earliest, but worst performance. Furnished with all the learning of Europe, he at last thought proper to return to Copenhagen, where his ingenious productions quickly gained him that favor he deserved."

Teaching by lecture, as at Edinburgh, may make men scholars, if they think proper; but instructing by examination, as at Oxford, will make them so often against their inclination.

Edinburgh only disposes the student to receive learning; Oxford often makes him actually learned.

In a word, were I poor, I should send my son to Leyden or Edinburgh, though the annual expense in each, particularly in the first, is very great. Were I rich, I would send him to one of our own universities. By an education received in the first, he has the best likelihood of living; by that received in the latter, he has the best chance of becoming great.

We have of late heard much of the necessity of studying oratory. Vespasian was the first who paid professors of rhetoric for publicly instructing youth at Rome. However, those pedants never made an orator.

The best orations that ever were spoken were pronounced in the parliaments of King Charles the First. These men never studied the rules of oratory.

Mathematics are, perhaps, too much studied at our universities. This seems a science to which the meanest intellects are equal.* I forget who it is that says, "All men might understand mathematics, if they would."

The most methodical manner of lecturing, whether on morals or nature, is, first rationally to explain, and then produce the experiment. The most instructive method is to show the experiment first; curiosity is then excited, and attention awakened to every subsequent deduction. Hence it is evident, that in a well formed education, a course of history should ever precede a course of ethics.

The sons of our nobility are permitted to enjoy greater liberties in our universities than those of private men. I should blush to ask the men of learning and virtue who preside in our seminaries, the reason of such a prejudicial distinction. Our youth should there be inspired with a love of philosophy; and the first maxim among philosophers is, that merit only makes distinction.

Whence has proceeded the vain magnificence of expensive architecture in our colleges? Is it that men study to more advantage in a palace than in a cell? One single performance of taste or genius confers more real honors on its parent university, than all the labors of the chisel.

Surely pride itself has dictated to the fellows of our colleges the absurd passion of being attended at meals, and on other public occasions, by those poor men who, willing to be scholars, come in upon some charitable foundation. It implies a contradiction, for men to be at once learning the *liberal* arts, and at the same time treated as *slaves;* at once studying freedom, and practicing servitude.

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* This is partly true, but not to the extent which is implied in our author's general assertion. The elements of the science may certainly be acquired without any extraordinary share of intellect; but surely distinguished proficiency in the higher branches of mathematics implies something more than the industrious efforts of the "meanest intellects." Goldsmith himself was a very indifferent mathematician; and this will perhaps account sufficiently for his attempt to underrate the importance of the science, and his wish to consider its acquisition as the despicable triumph of plodding mediocrity.—*Bohn.*

For a full and able discussion of the claims of mathematics in a course of liberal studies, see Sir William Hamilton's Miscellanies.

SAMUEL JOHNSON.

THOUGHTS ON EDUCATION AND CONDUCT.

Gathered from his Conversations reported by Boswell.

OPINION ON HIS OWN EDUCATION.

JOHNSON himself began to learn Latin with Mr. Hawkins, usher, or under-master of Litchfield school, "A man (said he) very skillful in his little way."—With him he continued two years, and then rose to be under the care of Mr Hunter, the head-master, who, according to his account, "was very severe, and wrong-headedly severe. He used (said he) to beat us unmercifully; and he did not distinguish between ignorance and negligence; for he would beat a boy equally for not knowing a thing, as for neglecting to know it. He would ask a boy a question; and if he did not answer him, he would beat him, without considering whether he had an opportunity of knowing how to answer it; for instance, he would call upon a boy and ask him in Latin for a candlestick, which the boy could not expect to be asked. Now, Sir, if a boy could answer every question, there would be no need of a master to teach him."

Johnson, however, was very sensible how much he owed to Mr. Hunter Mr. Langton one day asked him how he acquired so accurate a knowledge of Latin, in which he was thought not to be exceeded by any man of his time. He said, "My master whipt me very well. Without that, Sir, I should have done nothing." He also told Mr. Langton, that while Hunter was flogging his boys unmercifully, he used to say, "And this I do to save you from the gallows." Johnson, upon all occasions, expressed his approbation of enforcing instruction by means of the rod. "I would rather have the rod the general terror of all, to make them learn, than tell a child, if you do thus, or thus, you will be more esteemed than your brothers or sisters. The rod produces an effect that terminates in itself. A child is afraid of being whipped, and gets his task, and there's an end on't; whereas, by exciting emulation and comparisons of superiority, you lay the foundation of lasting mischief; you make brothers and sisters hate each other."

INFLUENCE OF EDUCATION.

He allowed very great influence to education. "I do not deny but there is some original difference in minds; but it is nothing in comparison of what is formed by education. We may instance the science of *numbers*, which all minds are equally capable of attaining; yet we find a prodigious difference in the powers of different men, in that respect, after they are grown up, because their minds have been more or less exercised in it; and I think the same cause will explain the difference of excellence in other things, gradations admitting always some difference in the first principles."

Teaching by lecture, as at Edinburgh, may make men scholars, if they think proper; but instructing by examination, as at Oxford, will make them so often against their inclination.

Edinburgh only disposes the student to receive learning; Oxford often makes him actually learned.

In a word, were I poor, I should send my son to Leyden or Edinburgh, though the annual expense in each, particularly in the first, is very great. Were I rich, I would send him to one of our own universities. By an education received in the first, he has the best likelihood of living; by that received in the latter, he has the best chance of becoming great.

We have of late heard much of the necessity of studying oratory. Vespasian was the first who paid professors of rhetoric for publicly instructing youth at Rome. However, those pedants never made an orator.

The best orations that ever were spoken were pronounced in the parliaments of King Charles the First. These men never studied the rules of oratory.

Mathematics are, perhaps, too much studied at our universities. This seems a science to which the meanest intellects are equal.* I forget who it is that says, "All men might understand mathematics, if they would."

The most methodical manner of lecturing, whether on morals or nature, is, first rationally to explain, and then produce the experiment. The most instructive method is to show the experiment first; curiosity is then excited, and attention awakened to every subsequent deduction. Hence it is evident, that in a well formed education, a course of history should ever precede a course of ethics.

The sons of our nobility are permitted to enjoy greater liberties in our universities than those of private men. I should blush to ask the men of learning and virtue who preside in our seminaries, the reason of such a prejudicial distinction. Our youth should there be inspired with a love of philosophy; and the first maxim among philosophers is, that merit only makes distinction.

Whence has proceeded the vain magnificence of expensive architecture in our colleges? Is it that men study to more advantage in a palace than in a cell? One single performance of taste or genius confers more real honors on its parent university, than all the labors of the chisel.

Surely pride itself has dictated to the fellows of our colleges the absurd passion of being attended at meals, and on other public occasions, by those poor men who, willing to be scholars, come in upon some charitable foundation. It implies a contradiction, for men to be at once learning the *liberal* arts, and at the same time treated as *slaves*; at once studying freedom, and practicing servitude.

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* This is partly true, but not to the extent which is implied in our author's general assertion. The elements of the science may certainly be acquired without any extraordinary share of intellect; but surely distinguished proficiency in the higher branches of mathematics implies something more than the industrious efforts of the "meanest intellects." Goldsmith himself was a very indifferent mathematician; and this will perhaps account sufficiently for his attempt to underrate the importance of the science, and his wish to consider its acquisition as the despicable triumph of plodding mediocrity.—*Bohn.*

For a full and able discussion of the claims of mathematics in a course of liberal studies, see Sir William Hamilton's Miscellanies.

SAMUEL JOHNSON.

THOUGHTS ON EDUCATION AND CONDUCT.

Gathered from his Conversations reported by Boswell.

OPINION ON HIS OWN EDUCATION.

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SCHEME* FOR THE CLASSES OF A GRAMMAR SCHOOL.

"When the introduction, or formation of nouns and verbs, is perfectly mastered, let them learn

Corderius, by Mr. Clarke, beginning at the same time to translate out of the introduction, that by this means they may learn the syntax. Then let them proceed to

Erasmus, with an English translation, by the same author.

The second class learns Eutropius and Cornelius Nepos, or Justin, with the translation.

N. B. The first class gets for their part every morning the rules which they have learned before, and in the afternoon learns the Latin rules of the nouns and verbs.

They are examined in the rules which they have learned every Thursday and Saturday.

The second class does the same whilst they are in Eutropius; afterwards their part is in the irregular nouns and verbs, and in the rules for making and scanning verses. They are examined as the first.

The third class learns Ovid's Metamorphoses in the morning, and Cæsar's Commentaries in the afternoon.

Practice in the Latin rules till they are perfect in them; afterwards in Mr. Leed's Greek Grammar. Examined as before.

Afterwards they proceed to Virgil, beginning at the same time to write themes and verses and to learn Greek; from thence passing on to Horace, &c., as shall seem most proper."

SCHEME FOR THE STUDIES OF A STUDENT FITTING FOR THE UNIVERSITY.

"I know not well what books to direct you to, because you have not informed me what study you will apply yourself to. I believe it will be most for your advantage to apply yourself wholly to the languages, till you go to the University. The Greek authors I think it best for you to read are these:

Cebes.	Attic.
Ælian.	
Lucian by Leeds.	
Xenophon.	
Homer.	Ionic.
Theocritus.	Doric.
Euripides.	Attic and Doric.

Thus you will be tolerably skilled in all the dialects, beginning with the Attic, to which the rest must be referred.

In the study of Latin, it is proper not to read the latter authors, till you are well versed in those of the purist ages; as Terence, Tully, Cæsar, Sallust, Nepos, Velleius Paterculus, Virgil, Horace, Phædrus.

The greatest and most necessary task still remains, to attain a habit of expression, without which knowledge is of little use. This is necessary in Latin, and more necessary in English; and can only be acquired by a daily imitation of the best and correctest authors."

STUDY OF GREEK AND LATIN.

"Dr. Johnson and I one day took a sculler at the Temple stairs, and set out for Greenwich. I asked him if he really thought a knowledge of the Greek and Latin languages an essential requisite to a good education. JOHNSON. "Most certainly, Sir; for those who know them have a very great advantage over those who do not. Nay, sir, it is wonderful what a difference learning makes upon people even in the common intercourse of life, which does not appear to be much connected with it." "And yet (said Mr. B.) people go through the world very well, and carry on the business of life to good advantage, without learning." *J.* "Why, Sir, that may be true in cases where learning can not possibly be of any use; for instance, this boy rows us as well without learning as if he could sing the song of Orpheus to the Argonauts, who were the first sailors." He then called to the boy, "What would you give, my lad; to know about the Argonauts?" "Sir, (said the boy,) I would give what I have." Johnson was much pleased with the answer, and we gave him a double fare. The Doctor then turning to Mr. B. said, "Sir, a desire of knowledge is the natural feeling of mankind; and every human being, whose mind is not debauched, will be willing to give all that he has to get knowledge."

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* Mr Croker in his edition of Boswell's Johnson—characterizes this scheme as a "Crude Sketch," and doubts whether it contains Dr. Johnson's mature and general sentiments on even the narrow branch of education to which it refers.

VALUE OF KNOWLEDGE TO THE WORKING CLASSES.

To Mr. Langton when about to established a school upon his estate, it had been suggested, that it might have a tendency to make the people less industrious. "No, sir, (said Johnson.) While learning to read and write is a distinction, the few who have that distinction may be the less inclined to work; but when everybody learns to read and write, it is no longer a distinction. A man who has a laced waistcoat is too fine a man to work; but if everybody had laced waistcoats, we should have people working in laced waistcoats. There are no people whatever more industrious, none who work more than our manufacturers; yet they have all learnt to read and write. Sir, you must not neglect doing a thing immediately good, from fear of remote evil, from fear of its being abused. A man who has candles may sit up too late, which he would not do if he had not candles; but nobody will deny that the art of making candles, by which light is continued to us beyond the time that the sun gives us light, is a valuable art, and ought to be preserved."

On another occasion he said, "Where there is no education, as in savage countries, men will have the upper hand of women. Bodily strength, no doubt contributes to this; but it would be so, exclusive of that; for it is mind that always governs. When it comes to dry understanding, man has the better."

Mr. Boswell observed, that he was well assured, that the people of Otaheite who have the bread tree, the fruit of which serves them for bread, laughed heartily when they were informed of the tedious process necessary with us to have bread;—plowing, sowing, harrowing, reaping, threshing, grinding, baking. JOHNSON. "Why, sir, all ignorant savages will laugh when they are told of the advantages of civilized life. Were you to tell men who live without houses, how we pile brick upon brick, and rafter upon rafter, and that after a house is raised to a certain height, a man tumbles off a scaffold, and breaks his neck, he would laugh heartily at our folly in building; but it does not follow that men are better without houses. No, sir (holding up a slice of a good loaf) that is better than the bread tree."

Goldsmith once attempted to maintain, perhaps from affectation of paradox, "that knowledge was not desirable on its own account, for it often was a source of unhappiness." "Why, sir, (said Johnson) that knowledge may in some cases produce unhappiness, I allow. But upon the whole, knowledge, *per se*, is certainly an object which every man would wish to attain, although perhaps, he may not take the trouble necessary for attaining it. Much might be done if a man put his whole mind to a particular object. By doing so, Norton made himself the great lawyer that he was allowed to be."

He one day observed, "All knowledge is of itself of some value. There is nothing so minute or inconsiderable, that I would not rather know it than not. In the same manner, all power of whatever sort, is of itself desirable. A man would not submit to hem a ruffle of his wife, or his wife's maid; but if a mere wish could obtain it, he would rather wish to be able to hem a ruffle."

PUBLIC SCHOOLS (THE GREAT BOARDING SCHOOLS) AND PRIVATE TUITION AT HOME COMPARED.

Of education at the Public Schools, Johnson displayed the advantages and disadvantages in a luminous manner; but his arguments preponderated much in favor of the benefit which a boy of good parts might receive at one of them.

"At a great school there is all the splendor and illumination of many minds; the radiance of all is centered in each, or at least is reflected upon each. But we must own that neither a dull boy, nor an idle boy, will do so well at a great school as at a private one. For at a great school, there are always boys enough to do easily, who are sufficient to keep up the credit of the school; and after whipping being tried to no purpose, the dull or idle boys are left at the end of the class, having the appearance of going through the course, but learning nothing at all. Such boys may do well at a private school, where constant attention is paid to them, and they are watched. So that the question of public or private education is not properly a general one, but whether one or the other is best for my son."

At another time he said, "There is now less flogging in our great schools than formerly,but then less is learned there; so that what the boys get at one ond end they lose at the other." Yet more, he observed, was learned in public than in private schools, from emulation; "there is the collision of mind with mind, or the radiance of many minds pointing to one center."

REFINEMENTS AND NOVELTIES IN EDUCATION.

"I hate by-roads in education. Education is as well known, and has long been as well known, as ever it can be. Endeavoring to make children prematurely wise is useless labor. Suppose they have more knowledge at five or six years than other children, what use can be made of it? It will be lost before it is wanted, and the waste of so much time and labor of the teacher can never be repaid. Too much is expected from precocity, and too little performed. Miss ——— was an instance of early cultivation; but in what did it terminate? In marrying a little Presbyterian parson, who keeps an infant boarding school, so that all her employment now is,

"To suckle fools, and chronicle small beer."

She tells the children, 'this is a cat, and that is a dog with four legs and a tail; see there! you are much better than a cat or a dog, for you can speak.' I am always for getting a boy forward in his learning; for that is a sure good. I would let him at first read any English book which happens to engage his attention; because you have done a great deal when you have brought him to have entertainment from a book. He'll get better books afterward."

Johnson advised Mr. Boswell not to *refine* in the education of his children. "Life will not bear refinement; you must do as other people do. Above all accustom your children constantly to tell the truth; if a thing happened at one window, and they, when relating it, say that it happened at another, do not let it pass, but instantly check them; you do not know where deviation from truth will end." **Boswell.** "It may come to the door: and when once an account is at all varied in one circumstance, it may by degrees be varied so as to be totally different from what really happened." A lady in the company, whose fancy was impatient of the rein, fidgeted at this, and ventured to say, "Nay, this is too much. If Mr. Johnson should forbid me to drink tea I would comply, as I should feel the restraint only twice a day; but little variations in narrative must happen a thousand times a day, if one is not perpetually watching. **Johnson.** "Well, Madam, and you ought to be perpetually watching. It is more from carelessness about truth than from intentional lying that there is so much falsehood in the world."

Talking of instruction, "People have now-a-days got a strange opinion that every thing should be taught by lectures. Now I can not see that lectures can do so much good as reading the books from which the lectures are taken. I know nothing that can be best taught by lectures, except where experiments are to be shown. You may teach chemistry by lectures; you might teach making of shoes by lectures!"

"Education in England has been in danger of being hurt by two of its greatest men, Milton and Locke. Milton's plan is impracticable, and I suppose has never been tried; Locke's I fancy, has been tried often enough, but is very imperfect; it gives too much on one side, and too little on the other: it gives too little to literature."

CORPORAL PUNISHMENT BY THE SCHOOLMASTER.

The master of a public school at Campbell-town, in Scotland, had been suspended from his office, on a charge against him of having used immoderate and cruel correction. Mr. Boswell was engaged to plead the cause of the master, and consulted Dr. Johnson on the subject, who made the following observations: "The charge is, that he has used immoderate and cruel correction. Correction in itself, is not cruel; children, being not reasonable, can be governed only by fear. To impress this fear, is therefore one of the first duties of those who have the care of children. It is the duty of a parent, and has never been thought inconsistent with parental tenderness. It is the duty of a master, who is in the highest exaltation when he is *loco parentis.* Yet, as good things become evil by excess, correction, by being immoderate, may become cruel. But when is correction immoderate? When it is more frequent or more severe than is required *ad monendum et docendum*, for reformation and instruction. No severity is cruel which obstinacy makes necessary; for the greatest cruelty would be to desist, and leave the scholar too careless for instruction, and too much hardened for reproof. Locke, in his treatise of Education, mentions a mother with applause, who whipped an infant eight times before she had subdued it; for had she stopped at the seventh act of correction, her daughter, says he, would have been ruined. The degrees of obstinacy in young minds are very different; as different must be the degrees of persevering severity. A stubborn scholar must be corrected till he is subdued. The discipline of a school is military. There must either be unbounded licence or absolute authority. The master who punishes, not only consults the future happiness of him who is the immediate subject of correction, but he propagates obedience through the whole school, and establishes regularity by exemplary justice. The victorious obstinacy of a single boy would make his future endeavors of reformation or instruction totally ineffectual: obstinacy therefore must never be victorious. Yet it is well known, that there sometimes occurs a sullen and hardy resolution, that laughs at all common punishment, and bids defiance to all common degrees of pain. Correction must be proportioned to occasions. The flexible will be reformed by gentle discipline, and the refractory must be subdued by harsher methods. The degrees of scholastic, as of military punishment, no stated rules can ascertain. It must be enforced till it overpowers temptation; till stubbornness becomes flexible, and perverseness regular. Custom and reason have, indeed, set some bounds to scholastic penalties: the schoolmaster inflicts no capital punishments, nor enforces his edicts by either death or mutilation. The civil law has wisely determined, that a master who strikes at a scholar's eye shall be considered as criminal. But punishments, however severe, that produce no lasting evil, may be just and reasonable, because they may be necessary. Such have been the punishments used by the schoolmaster accused. No scholar has gone from him either blind or lame, or with any of his limbs or powers injured or impaired. They were irregular, and he punished them; they were obstinate, and he enforced his punishment. But, however provoked, he never exceeded the limits of moderation, for he inflicted nothing beyond present pain; and how much of that was required, no man is so little able to determine as those who have determined against him—the parents of the offenders. It has been said, that he used unprecedented and improper instruments of correction. Of this accusation the meaning is not very easy to be found. No instrument of correction is more proper than another, but as it is better adapted to produce present pain without lasting mischief. Whatever were his instruments, no lasting mischief has ensued; and therefore. however unusual, in hands so cautious they were proper. It has been objected, that he admits the charge of cruelty, by producing no evidence to confute. Let it be considered, that his scholars are either dispersed at large in the world or continue to inhabit the place in which they were bred. Those who are dispersed can not be found; those who remain are the sons of his persecutors, and are not likely to support a man to whom their fathers are enemies. If it be supposed that the enmity of their fathers proves the justice of the charge, it must be considered how often experience shows us, that men who are angry on one ground will accuse on another; with how little kindness in a town of low trade, a man who lives by learning is regarded; and how implicitly, where the inhabitants are not very rich, a rich man is hearkened to and followed. In a place like Campbell-town, it is easy for one of the principal inhabitants to make a party. It is easy for that party to heat themselves with imaginary grievances. It is easy for them to oppress a man poorer than themselves; and natural to assert the dignity of riches, by persisting in oppression."

Upon the same subject, Mr. Boswell also observed, "It is a very delicate matter to interfere between a master and his scholars; nor do I see how you can fix the degree of severity that a master may use." JOHNSON. "Why, sir, till you can fix the degree of obstinacy and negligence of the scholars, you can not fix the degree of severity of the master. Severity must be continued until obstinacy be subdued and negligence be cured."

SAMUEL PARR, D.D.—1747-1825.

DR. SAMUEL PARR was born at Harrow-on-the Hill in 1737, spent two years in Emanuel College, Cambridge, and served as usher in Harrow School from 1767 to 1772, and afterwards as principal of a classical school at Colchester, and Norwich. His erudition was vast, and in spite of its frequently injudicious and inelegant ostentation, was pronounced by Macaulay "to be precious, massive, and splendid." We give below brief passages from a *Discourse on Education*, preached in behalf of the Charity Schools of Norwich, December 25, 1770, to mark the transition in the aims of English Educators from the old doctrine of parochial, charitable, and endowed schools, to the broader practice of public instruction, supported by government appropriations, and property taxation.

EDUCATION IN RESPECT TO PENAL LEGISLATION.

The great and fundamental principle upon which the whole system of penal laws has been erected is, that they are meant not so much to punish as to deter; not merely to lop off the offender, but chiefly to prevent his offenses from becoming contagious; not to gratify the malice of individuals, but to secure the public good. Now for purposes of prevention nearly similar, we defend the cause of early and religious education. It aims, indeed, at ends far more numerous than laws can attain, and it pursues them by methods more generally applicable, and more agreeable to our humanity when they are applied.

In promoting the happiness of our species, much is, in Christian countries, effected by the authority of legal restraint, and much by public instruction from the pulpit. But education in the large and proper sense,[*] in which I have endeavored to enforce it, may boast even of superior usefulness.

It comes home directly "to the bosom and business of" young persons—it rectifies every principle, and controls every action—it prevents their attention from being relaxed by amusement, dissipated by levity, or overwhelmed by vice—it preserves them from falling a prey to the wicked examples of the world when they are in company, and from becoming slaves to their own turbulent appetites when they are in solitude. It is not occasional or desultory in its operation—on the contrary, it heaps "line upon line, and precept upon precept,"—it binds the commands of religion, for "a sign upon the hands of young men, and frontlets between their eyes,"—it is calculated to purify their desires, and to regulate their conduct, when they "sit in the house, and when they walk in the way;" when they "lie down in peace to take their rest," and when they "rise up" to "go forth to their labor." Now, in tracing the progress of society, whether it be collected from the records of Revelation or the deductions of Philosophy, from oral tradition or from historical evidence, we find that men first assembled in small companies, which are generally to be looked upon rather as tribes under a chieftain than as nations under a king.

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[*] By education, I all along mean not merely the act of inculcating moral precepts and religious doctrine, but a series of discipline applied to the hearts and lives of young persons. I contend, however, that good instruction is instrumental in forming good habits.

The arts of policy were then confined to a narrow compass; the remains of private life were closely interwoven with those of public; and the education of children was subjected not only to the discretionary authority of parents, but to the immediate and frequent interpositions of lawgivers.

A custom which began among tribes continued afterwards in small States; and hence we find that by the laws of Sparta, the magistrates often laid down rules for training up children. But in larger kingdoms as in that of Persia, the system of instruction which fell under the notice of government, chiefly affected those who were born from noble parents, and intended for elevated stations. In states more civilized than Sparta, and more popular than Persia, the magistrates rather encouraged than directed education; and here we see it flourish with the greatest variety, and in the highest perfection. The man of fortune among the Athenians refined his manners by literal studies, enlarged his understanding in the schools of philosophy, and braced the powers of his body by the rough exercises of the gymnasia. But the lower citizens were content to acquire the art of reading, and hence among a people so fastidious and so high spirited as the Athenians were, "to be ignorant of letters," became a proverbial and poignant term of contempt. In our own country, the various plans of instruction are well adapted to the various classes of the community. Our public forms of education supply much of what was done in the larger states of antiquity, and by the methods taken for training up the children of the poor, we secure many of the benefits that were aimed at in the smaller. Accommodating thus our measures to the different exigencies of different times and places, we are at liberty to employ many expedients, which, in the distant and general view of a legislator, would be imperfectly provided for; and we avoid many inconveniences by which education would certainly be cramped, in consequence of rules indiscriminately prescribed and compulsorily enforced.

INDUSTRIAL ELEMENT IN SCHOOLS FOR THE POOR.

A moderate proportion of work, at the discretion of a committee for that purpose, is to be allotted, and their earnings during that time are to be regularly accounted for, and in case any child should, by greater industry, earn beyond that proportion, it becomes the property of that child, and is to be set apart for his use. It will produce rewards for the diligent; it will furnish materials of employment for the idle; it will enable you to instruct more boys than hitherto have been instructed, in reading and writing; it takes nothing from those who now read and write. We beget in these children more regular habits of industry, and we convey to them a more exact knowledge of the little arts in which they are employed, than desultory and solitary labor can bestow. We do not impose upon them such severe toils as will entirely disable the diligent from contributing at home to the support of their parents. We give them instruction, which is in some measure connected with the more laborious employments to which they will be hereafter summoned; and we provide, too, means of subsistence for seasons when the poor may derive many comforts yet unforeseen from the task you assign them. Those comforts may be found in change of place, in old age, or in an unprosperous state of trade.

BETTER EDUCATION OF GIRLS.

Women are no longer considered as being, what the great God of heaven and earth never intended they should be, an useless incumbrance, or a glittering, but empty ornament. They are found to be capable both of contributing to our conveniences, and of refining our pleasures. Their weakness is therefore protected, their fine sensibilities become the object of a regard that is founded on principle as well as on affection, and their talents are called forth into public notice. Hence the excellence which some of them have displayed, in the elegant accomplishments of painting, and music, and poetry; in the nice discriminations of biography; in the broader researches of history; in moral compositions, where the subject is not obscured by the arts of a quaint and spurious philosophy, but illuminated by the graces of an unaffected and natural eloquence; where, through the labyrinths in which are to be found the most hidden and complex principles of thought and action, we are conducted by the delicate and faithful clue of manners; and where, instead of being harassed by subtleties which beguile and weary the understanding, we are led, by a sort of magical attraction, through a long and varied train of sentiments, which charm and improve the heart. Hence the employment assigned to others in many different branches of manual labor. The employments which you have prescribed may be stretched almost through the whole circle of female duty and female economy, by those who are to pursue them. They contain whatever can be useful to them, whether as mistresses of little families which are their own, or as servants in the families of their superiors. They are calculated to cherish that prudence which is necessary in every station, and that cleanliness which is peculiarly ornamental to the female sex. They tend to produce such habits of industry as are connected with the immediate business of these little ones, and such, too, as they can with ease and with advantage carry into the very few domestic employments which are not directly included within our plan.

ADVANTAGES OF ENGLISH UNIVERSITIES.*

This, I am aware, is not precisely the fittest opportunity for me to enter into a formal defense of them (the Universities of Cambridge and Oxford), or to expatiate upon their peculiar and indisputable advantages, upon those powerful correctives of singularity and frowardness which are found in the attrition of mind against mind on a spot where different classes live together under a system of general discipline,—upon the force of established rules in producing early habits of regularity and decorum,—upon the strong though easy yoke that is thrown over the impetuosity of youth,—upon the salutary influence among well impressed and well disposed young men, of that ὁμηλικια (*youthful comradeship*) which is so beautifully described, and so frequently extolled by the writers of antiquity,—upon the propensity of the heart unassailed by care and untainted by selfishness, to form the best friendships from the best motives, —upon the generous sense of shame that must prevail among enlightened equals, observing the conduct of equals, and cultivating honor, not as a showy and artificial fashion, but as a natural sentiment, and even an indispensable duty,—upon the goodly effects that are wrought on the temper as well as taste, by the daily and hourly view of edifices, agreeable from convenience, or striking from magnificence, or venerable from antiquity,—upon the desire which pictures, statues, inscriptions, public harangues, and other local circumstances, may excite in men of vivid conceptions and glowing ambition, not merely to admire but to perpetuate and to share in the celebrity of places adorned through many successive ages by many bright luminaries of the schools, the pulpit, the bar, and the senate,—upon the tendency of well regulated amusements, and well directed studies, to plant within our bosoms those attachments to the seat of our education, which may afterwards expand into the love of our country,—upon the facility of access to well stored libraries,—upon the efficacy of oral instruction, judiciously and diligently communicated,—upon the competitions that will arise among numbers, whose judgments on the qualifications of each other are too frequent to be eluded, too impartial to be resisted, and too weighty to be slighted,—upon the institution of prizes for compositions to be recited in the Halls of Colleges, or the Theatres of the Universities,—upon the distribution of literary distinctions in seasons of general examination,—or, upon the connection of other academical rewards, lucrative or honorary, with moral and intellectual excellence. Waving, therefore, all such pertinent and interesting topics, I would only request that the usefulness of these seminaries, like that of every human institution, may be judged by their fruits.

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* Note to the Spital Sermon, preached April 15, 1800.

Dr. Parr quotes passages from Dr. Johnson, Sir William Jones, and Dr. Lowth, to support his favorable estimate of English University Education. Dr. Johnson in the Idler (No. 21), says:

> The number of learned persons in these celebrated seats is still considerable; and more conveniences and opportunities for study still subsist in them than in any other place. There is at least one powerful incentive to learning—I mean the genius of the place. This is a sort of inspiring duty, which every youth of quick sensibility and ingenuous disposition creates to himself, by reflecting that he is placed under those venerable walls where a Hooker and a Hammond, a Bacon and a Newton, once pursued the same course of science, and from whence they soared to the most elevated heights of literary fame. This is that incitement, which Tully, according to his own testimony, experienced at Athens, when he contemplated the portico where Socrates sat, and the laurel-groves where Plato disputed. But there are other circumstances, and of the highest importance, which make our colleges superior to all places of education. These institutions, though somewhat fallen from their primary simplicity, are such as influence in a particular manner the moral conduct of their youths; and, in this general depravity of manners and laxity of principles, pure religion is no where more strongly inculcated.

Sir William Jones in an oration intended to have been spoken in Oxford, July 9, 1773, says:

> There is no branch of literature, there is no liberal art, no sublime or useful science which may not here be learned to perfection. All nature lies open to our inspection. The surprising fabric of this visible world has been explained to us, not by conjectures or opinions, but by demonstration; the works of poets, critics, rhetoricians, historians, philosophers, the accumulated wisdom of all nations and all ages, are here made accessible and familiar to the students of every class, in whose minds they are preserved as in a curious repository, whence they may at any time be extracted for the honor and benefit of the human species.

Dr. Lowth, in vindicating himself from the implied aspersion of Bishop Warburton in contrasting his own self-education with his (Dr. L's) opportunities of academical culture, confesses:—that

> He had been educated in the University of Oxford; he had enjoyed all the advantages, both public and private, which that famous seat of learning so largely affords; that he had spent many years in that illustrious society, in a well regulated course of discipline and studies, and in the agreeable and improving commerce of gentlemen and scholars; in a society where emulation without envy, ambition without jealousy, contention without animosity, incited industry and awakened genius; where a liberal pursuit of knowledge, and a genuine freedom of thought was raised, encouraged, and pushed forward, by example, by commendation, and by authority; that he had breathed there the same atmosphere which the Hookers, the Chillingworths, and the Lockes had breathed before.

SIR THOMAS MORE.

LETTERS ON THE EDUCATION OF HIS CHILDREN.

Sir Thomas More—who, as member and speaker of the House of Commons, and Chancellor of England, and in other positions of trust and magistracy, proved himself eminently fit, incorruptible, and efficient ; and as son, husband, father, neighbor, and friend, was never surpassed in the exercise of those homely, graceful, and Christian qualities which make up the happiness of home and social life—was born in London in 1480, and to the everlasting discredit of all concerned in his trial and condemnation, was beheaded July 5, 1535,—the victim of the brutal lust and high-handed tyranny of Henry VIII.

The following description of the school, and the views of Sir Thomas More on the education of his children, and especially of his daughters, are taken from *The Life of Sir Thomas More, by his grandson, Cresacre More:*

The Home School of Sir Thomas More.

The school of Sir Thomas More's children was famous over the whole world; for that their wits were rare, their diligence extraordinary, and their masters most excellent men, as above the rest Doctor Clement, an excellent Grecian and physician, who was after-reader of the physic-lecture in Oxford, and set out many books of learning. After him one William Gunnell, who read after with great praise in Cambridge; and besides these, one Drue, one Nicholas, and after all, one Richard Hart, of whose rare learning and industry in this behalf, let us see what may be gathered out of Sir Thomas's letters unto them, and, first, to Mr. Gunnell, thus:

SIR THOMAS MORE TO MR. GUNNELL.

I have received, my dear Gunnell, your letters, such as they are wont to be, most elegant, and full of affection. Your love towards my children I gather by your letter; their diligence by their own; for every one of their letters pleaseth me very much, yet most especially I take joy to hear that my daughter Elizabeth hath showed as great modesty in her mother's absence, as any one could do, if she had been in presence; let her know that that thing liked me better than all the epistles besides; for as I esteem learning which is joined with virtue, more than all the treasures of kings; so what doth the fame of being a great scholar bring us, if it be severed from virtue, other than a notorious and famous infamy, especially in a woman, whom men will be ready the more willingly to assail for their learning, because it is a hard matter, and argueth a reproach to the sluggishness of a man, who will not stick to lay the fault of their natural malice upon the quality of learning, supposing that their own unskilfulness by comparing it with the vices of those that are learned, shall be accounted for virtue; but if any woman, on the contrary part (as I hope and wish by your own instruction and teaching all mine will do), shall join many virtues of the mind with a little skill of learning, I shall account this more happiness than if they were able to attain to Crœsus' wealth, joined with the beauty of fair Helen; not because they were to get fame thereby, although that inseparably followeth all virtue, as shadow doth the body, but for that they should obtain by this the true reward of wisdom, which can never be taken away, as wealth may, nor will fade as beauty doth, because it dependeth of truth and justice, and not of the blasts of men's mouths, than which nothing is more foolish, nothing more pernicious; for as it is the duty of a good man to eschew infamy, so it is not only the property of a proud man, but also of a wretched and ridiculous man to frame their actions only for praise; for that man's mind must needs be full of unquietness, that always wavers for fear of other men's judgments between joy and sadness. But amongst other the notable benefits which learning bestoweth upon men, I account this one of the most profitable, that in getting of learning, we look not for praise, to be accounted learned men, but only to use it on all occasions, which the best of all other learned men, I mean the philosophers, those true moderators of men's actions, have delivered unto us from hand to hand, although some of them have abused their sciences, aiming only to be accounted excellent men by the people. Thus have I spoken, my Gunnell, somewhat the more of the not coveting of vain glory, in regard of those words in your letter, whereby you judge that the high spirit of my daughter Margaret's wit is not to be dejected, wherein I am of the same opinion that you are, but I think (as I doubt not but you are of the same mind) that he doth deject his generous wit, whosoever accustometh himself to admire vain and base objects, and he raiseth well his spirits, that embraceth virtue and true good. They are base-minded, indeed, that esteem the shadow of good things (which most men greedily snatch at, for want of discretion to judge true good from apparent), rather than the truth itself. And, therefore, seeing I hold this the best way for them to walk in, I have not only requested you, my dear Gunnell, whom of yourself I know would have done it out of the entire affection you bear unto them; neither have I desired my wife alone, whom her motherly piety by me often and many ways tried, doth stir them up thereto, but also all other my friends I have entreated many times to persuade all my children to this, that avoiding all the gulfs and downfalls of pride, they walk through the pleasant meadows of modesty, that they never be enamored of the glistening hue of gold and silver, nor lament for the want of those things which, by error, they admire in others; that they think no better of themselves for all their costly trimmings, nor any meaner for the want of them; not to lessen their beauty by neglecting it, which they have by nature, nor to make it any more by unseemly art; to think virtue their chief happiness, learning and good qualities the next, of which those are especially to be learned which will avail them most; that is to say, piety towards God, charity towards all men, modesty and Christian humility in themselves, by which they shall reap from God the reward of an innocent life, by certain confidence thereof they shall not need to fear death, and in the meanwhile enjoying true alacrity, they shall neither be puffed up with the vain praises of men, nor dejected by any slander of disgrace; these I esteem the true and solid fruits of learning; which, as they happen not, I confess to all that are learned, so those may easily attain them who begin to study with this intent; neither is there any difference in harvest time, whether he was man or woman that sowed first the corn; for both of them bear name of a reasonable creature equally, whose nature reason only doth distinguish from brute beasts, and, therefore, I do not see why learning, in like manner, may not equally agree with both sexes; for by it, reason is cultivated, and (as a field) sowed with the wholesome seed of good precepts, it bringeth forth an excellent fruit. But if the soil of woman's brain be of its own nature bad, and apter to bear fern than corn (by which saying many do terrify women from learning), I am of opinion, therefore, that a woman's wit is the more diligently by good instructions and learning to be manured, to the end, the defect of nature may be redressed by industry. Of which mind were also many wise and holy ancient fathers, as, to omit others, S. Hierome and S. Augustine, who not only exhorted many noble matrons and honorable virgins to the getting of learning, but also to further them therein, they diligently expounded unto them many hard places of Scriptures; yea, wrote many letters unto tender maids, full of so great learning, that scarcely our old and greatest professors of divinity can well read them, much less be able to understand them perfectly; which Holy Saints' work you will endeavor, my learned Gunnell, of your courtesy, that my daughters may learn, whereby they may chiefly know what end they ought to have in their learning to place the fruits of their labors in God, and a true conscience, by which it will be easily brought to pass, that being at peace within themselves, they shall neither be moved with praise of flatterers, nor the nipping follies of unlearned scoffers. But methinks I hear you reply, that though these, my precepts, be true, yet are they too strong and hard for the tender age of my young wenches to hearken to; for what man, be he never so aged or expert in any science, is so constant or staid, that he is not a little stirred up with the tickling vanity of glory? And for my part, I esteem that the harder it is to shake from us this plague of pride, so much the more ought every one to endeavor to do it from his very infancy. And I think there is no other cause why this almost inevitable mischief doth stick so fast in our breasts, but for that it is ingrafted in our tender minds, even by our nurses, as soon as we are crept out of our shells; it is fostered by our masters, it is nourished and perfected by our parents, whilst that nobody propoundeth any good thing to children, but they presently bid them expect praise as the whole reward of virtue; and hence it is that they are so much accustomed to esteem much of honor and praise, that by seeking to please the worst, who are always the worst, they are still ashamed to be good with the fewest. That this plague may the farther be banished from my children, I earnestly desire that you, my dear Gunnell, their mother and all their friends, would still sing this song unto them: hammer it always in their heads, and inculcate it unto them upon all occasions, that vain glory is abject, and to be despised; neither anything to be more worthy or excellent than that humble modesty, which is so much praised by Christ; the which prudent charity will so guide and direct, that it will teach us to desire virtue rather than to upbraid others for their vices, and will procure rather to love them who admonish us of our faults, than to hate them for their wholesome counsel. To the obtaining whereof nothing is more available than to read unto them the wholesome precepts of the fathers, whom they know not to be angry with them, and they must needs be vehemently moved with their authorities, because they are venerable for their sanctity. If, therefore, you read any such thing unto Margaret and Elizabeth besides their lessons in Tullust, for they are of riper judgment, by reason of their age, than John and Cecily, you shall make both me and them every day more bound unto you; moreover, you shall hereby procure my children being dear by nature, after this more dear for learning, but by their increase of good manners, most dear unto me. Farewell. *From the Court this Whitsun-Eve.*

SIR THOMAS MORE TO HIS CHILDREN.

THOMAS MORE, *to his whole School, sendeth Greeting:*—Behold how I have found out a compendious way to salute you all, and make spare of time and paper, which I must needs have wasted in saluting every one of you, particularly by your names, which would be very superfluous, because you are all so dear unto me, some in one respect, some in another, that I can omit none of you unsaluted. Yet I know not whether there can be any better motive why I should love you than because you are scholars, learning seeming to bind me more straitly unto you than the nearness of blood. I rejoice, therefore, that Mr. Drue is returned safe, of whose safety you know I was careful. If I loved you not so much, I should envy this, your so great happiness to have had so many great scholars for your masters. For I think Mr. Nicholas is with you also, and that you have learned of him much astronomy; so that I hear you have proceeded so far in this science that you now know not only the pole-star or dog, and such like of the common constellations, but also (which argueth an absolute and cunning astronomer) in the chief planets themselves, you are able to discern the sun from the moon. Go forward, therefore, with this, your new and admirable skill, by which you do thus climb up to the stars, which, whilst you daily admire, in the meanwhile I admonish you also to think of this Holy Fast of Lent, and let that excellent and pious song of Boethius sound in your ears, whereby you are taught also with your minds to penetrate heaven, lest when the body is lifted up on high, the soul be driven down to the earth with the brute beasts. Farewell. *From the Court this 23d of March.*

THOMAS MORE *to his best beloved children, and to Margaret Giggs, whom he numbereth amongst his own, sendeth Greeting:*

The merchant of Bristow brought unto me your letters the next day after he had received them of you, with the which I was exceedingly delighted; for there can come nothing, yea, though it were never so rude, never so meanly polished, from this your shop, but it procureth me more delight than any other's works, be they never so eloquent; your writing doth so stir up my affection towards you; but excluding this, your letters may also very well please me for their own worth, being full of fine wit, and of a pure Latin phrase. Therefore, none of them all but joyed me exceedingly; yet to tell you ingenuously what I think, my son John's letter pleased me best, both because it was longer than the other, as also for that he seemeth to have taken more pains than the rest; for he not only painteth out the matter decently, and speaketh elegantly, but he playeth also pleasantly with me, and returneth my jests upon me again very wittily; and this he doth not only pleasantly, but temperately withal, showing that he is mindful with whom he jesteth, to wit, his father, whom he endeavoreth so to delight, that he is also afeared to offend. Hereafter I expect every day letters from every one of you; neither will I accept such excuses as you complain of, that you had no leisure, or that the carrier went away suddenly, or that you have no matter to write; John is not wont to allege any such things; nothing can hinder you from writing, but many things may exhort you thereto; why should you lay any fault upon the carrier, seeing you may prevent his coming, and have them ready made up and sealed two days before any offer themselves to carry them? And how can you want matter of writing unto me, who am delighted to hear either of your studies or of your play; whom you may even then please exceedingly, when, having nothing to write of, you write as largely as you can of that nothing, than which nothing is more easy for you to do, especially being women, and, therefore, prattlers by nature, and amongst whom, daily, a great story riseth of nothing? But this I admonish you to do, that whether you write of serious matters or of trifles, you write with diligence and consideration, premeditating of it before; neither will it be amiss if you first indite it in English, for then it may more easily be translated into Latin, whilst the mind, free from inventing, is attentive to find apt and eloquent words. And although I put this to your choice, whether you will do so or no, yet I enjoin you by all means, that you diligently examine what you have written, before you write it over fair again, first considering attentively the whole sentence; and after examine every part thereof, by which means you may easily find out if any solecisms have escaped you; which being put out, and your letter written fair, yet then let it not also trouble you to examine it over again; for sometimes the same faults creep in at the second writing, which you before had blotted out. By this your diligence you will procure, that those your trifles will seem serious matters. For as nothing is so pleasing but may be made unsavory by prating garrulity, so nothing is by nature so unpleasant that, by industry, may not be made full of grace and pleasantness. Farewell, my sweetest children. *From the Court, this 3d of September.*

SIR THOMAS MORE TO HIS DAUGHTER MARGARET.

Thy letters (dearest Margaret) were grateful unto me, which certified me of the state of Shaw; yet would they have been more grateful unto me if they had told me what your and your brother's studies were, what is read amongst you every day, how pleasantly you confer together, what themes you make, and how you pass the day away amongst you in the sweet fruits of learning. And although nothing is written from you but it is most pleasing unto me, yet those things are most sugared sweet which I cannot learn of but by you or your brother. [And in the end:] I pray thee, Meg, see that I understand by you what your studies are; for rather than I would suffer you, my children, to live idly, I would myself look unto you, with the loss of my temporal estate, bidding all other cares and business farewell, amongst which there is nothing more sweet unto me than thyself, my dearest daughter. Farewell.

SIR THOMAS MORE TO HIS DAUGHTERS.

Thomas More sendeth greeting to his most dear daughters, Margaret, Elizabeth, and Cecily; and to Margaret Giggs, as dear to him as if she were his own. I cannot sufficiently express, my best beloved wenches, how your eloquent letters have exceedingly pleased me; and this is not the least cause that, I understand by them, you have not in your journeys, though you change places often, omitted anything of your custom of exercising yourselves, either in making of declamations, composing of verses, or in your logic exercises; by this I persuade myself that you dearly love me, because I see you have so great a care to please me by your diligence in my absence as to perform these things, which you know how grateful they are unto me in my presence. And as I find this your mind and affection so much to delight me, so will I procure that my return shall be profitable unto you. And persuade yourselves that there is nothing amongst these my troublesome and careful affairs, that recreateth me so much as when I read somewhat of your labors, by which I understand those things to be true which your most loving master writeth so lovingly of you, that unless your own epistles did show evidently unto me how earnest your desire is towards learning, I should have judged that he had rather written of affection than according to the truth; but now by these that you write, you make him to be believed, and me to imagine those things to be true of your witty and acute disputations, which he boasteth of you almost above all belief. I am, therefore, marvellous desirous to come home, that we may hear them, and set our scholar to dispute with you, who is slow to believe, yea, out of all hope or conceit, to find you able to be answerable to your master's praises. But I hope, knowing how steadfast you are in your affections, that you will shortly overcome your master, if not in disputing, at least in not leaving of your strife. Farewell, dear wenches.

And thus you may conjecture how learned his daughters were; to whom, for this respect, Erasmus dedicated his commentary upon Ovid's "De Nuce." Lewis Vives also writeth great commendations of this school of Sir Thomas More's, in his book to Queen Catherine of England. And both Erasmus dedicated Aristotle in Greek, and Simon Grineus, who, although an heretic, yet, in respect of his learning, had been kindly used by Sir Thomas More, as he writeth himself, did dedicate Plato and other books in Greek, unto my grandfather, John More, as to one that was also very skilful in that tongue. See what Grineus speaketh unto him: "There was a great necessity why I should dedicate these books of Proclus (full of marvellous learning, by my pains set out, but not without the singular benefit of your father effected), unto you, to whom, by reason of your father-like virtues, all the fruit is to redound, both because you may be an ornament unto them, and they also may do great good unto you, whom I know to be learned, and for these grave disputations sufficiently provided and made fit by the continual conversation of so worthy a father, and by the company of your sisters, who are most expert in all kinds of sciences. For what author can be more grateful to those desirous minds of most goodly things, such as you and the muses your sisters are, whom a divine heat of spirit to the admiration and a new example of this our age, hath driven into the sea of learning so far, and so happily, that they see no learning to be above their reach, no disputations of philosophy above their capacity. And none can better explicate entangled questions, none sift them more profoundly, nor conceive them more easily, than this author."

SIR THOMAS MORE TO HIS DAUGHTER MARGARET.

You ask money, dear Meg, too shamefully (*modestly*) and fearfully of your father, who is both desirous to give it you, and your letter hath deserved it, which I could find in my heart to recompense, not as Alexander did by Cherilus, giving him for every verse a Philippine of gold, but if my ability were answerable to my will, I would bestow two crowns of pure gold for every syllable thereof. Here I send you as much as you requested, being willing to have sent you more, but that as I am glad to give, so I am desirous to be asked and fawned on by my daughters, thee especially, whom virtue and learning hath made most dear unto me. Wherefore, the sooner you have spent this money well, as you are wont to do, and the sooner you ask me for more, the sooner know you will do your father a singular pleasure. Farewell, my most beloved daughter.

This daughter was likest her father as well in favor as wit, and proved a most rare woman for learning, sanctity, and secrecy, and therefore he trusted her with all his secrets. She wrote two declamations in English, which her father and she turned into Latin so elegantly as one could hardly judge which was the best. She made also a treatise of the Four Last Things; which her father sincerely protested that it was better than his, and therefore, it may be, never finished his. She corrected, by her wit, a place in Saint Cyprian, corrupted, as Pamelian and John Coster testify, instead of "*Nisi vos sinceritatis*," restoring "*nervos sinceritatis*." To her Erasmus wrote an epistle, as to a woman not only famous for manners and virtue, but most of all for learning. We have heretofore made mention of her letter that Cardinal Pole so liked, that when he read it, he would not believe it could be any woman's; in answer whereof, Sir Thomas did send her the letter, some part whereof we have seen before; the rest is this, which, though there were no other testimony of her extraordinary learning, might suffice:

In the meantime I thought with myself how true I found that now, which once I remember I spoke unto you in jest, when I pitied your hard hap, that men that read your writings would suspect you to have had help of some other man therein, which would derogate somewhat from the praises due to your works; seeing that you, of all others, deserve least to have such a suspicion had of you, or that you never could abide to be decked with the plumes of other birds. But you, sweet Meg, are rather to be praised for this, that seeing you cannot hope for condign praise of your labors; yet for all this, you go forward with this your invincible courage, to join with your virtue the knowledge of most excellent sciences, and contenting yourself with your own pleasure in learning, you never hunt after vulgar praises, nor receive them willingly, though they be offered you. And for your singular piety and love towards me, you esteem me and your husband a sufficient and ample theatre for you to content you with; who, in requital of this your affection, beseech

God and our Lady, with as hearty prayers as possible we can pour out, to give you an easy and happy childbirth, to increase your family with a child most like yourself, except only in sex; yet if it be a wench, that it may be such a one as would, in time, recompense by imitation of her mother's learning and virtues, what, by the condition of her sex, may be wanting; such a wench I should prefer before three boys. Farewell, dearest daughter.

But see, I pray you, how a most learned Bishop in England was ravished with her learning and wit; as it appeareth by a letter which her father wrote unto her to certify her thereof:

Thomas More sendeth hearty greeting to his dearest daughter Margaret: I will let pass to tell you, my sweetest daughter, how much your letter delighted me; you may imagine how exceedingly it pleased your father, when you understand what affection the reading of it raised in a stranger. It happened me this evening to sit with John, Lord Bishop of Exeter, a learned man, and, by all men's judgment, a most sincere man. As we were talking together, and I, taking out of my pocket a paper which was to the purpose we were talking of, I pulled out, by chance, therewith your letter. The handwriting pleasing him, he took it from me and looked on it; when he perceived it, by the salutation, to be a woman's, he began more greedily to read it, novelty inviting him thereunto; but when he had read it, and understood that it was your writing, which he never could have believed if I had not seriously affirmed it. "Such a letter"—I say no more; yet why should not I report that which he said unto me?—"So pure a style, so good Latin, so eloquent, so full of sweet affections!"—he was marvellously ravished with it. When I perceived that, I brought forth also an oration of yours, which he reading, and also many of your verses, he was so moved with the matter so unlooked for, that the very countenance and gesture of the man, free from all flattery and deceit, betrayed that his mind was more than his words could utter, although he uttered many to your great praise; and forthwith he drew out of his pocket a portegue which you shall receive inclosed herein. I could not possibly shun the taking of it, but he would needs send it unto you, as a sign of his dear affection towards you, although by all means I endeavored to give it him again; which was the cause I showed him none of your other sister's works, for I was afraid lest I should have been thought to have showed them of purpose, because he should bestow the like courtesy upon them; for it troubled me sore, that I must needs take this of him; but he is so worthy a man, as I have said, that it is a happiness to please him thus. Write carefully unto him, and as eloquently as you are able, to give him thanks therefore. Farewell. *From the Court, this 11th of September, even almost at midnight.*

She made an oration to answer Quintilian, defending that rich man which he accused for having poisoned a poor man's bees with certain venomous flowers in his garden, so eloquent and witty that it may strive with his. She translated Eusebius out of Greek, but it was never printed, because Christopherson at that time had done it exactly before. Yet one other letter will I set down of Sir Thomas to this his daughter, which is thus:

Thomas More sendeth greeting to his dearest daughter Margaret: There was no reason, my dearest daughter, why thou shouldst have deferred thy writing unto me one day longer, for fear that thy letters, being so barren, should not be read of me without loathing. For though they had not been most curious, yet in respect of thy sex, thou mightest have been pardoned by any man; yea, even a blemish in the child's face seemeth often to a father beautiful. But these your letters, Meg, were so eloquently polished, that they had nothing in them, not only why they should fear the most indulgent affection of your father More, but also they needed not to have regarded even Momus's censure, though never so testy. I greatly thank Mr. Nicholas, our dear friend (a most expert man in astronomy), and do congratulate your happiness whom it may fortune within the space of one month, with a small labor of your own, to learn so many and such high wonders of that mighty and eternal workman, which were not found but in many ages, by watching, in so many cold nights, under the open skies, with much labor and pains, by such excellent, and above all other men's understanding wits. This which you write pleaseth me exceedingly, that you had determined with yourself to study philosophy so diligently, that you will hereafter recompense by your diligence what your negligence hath heretofore lost you. I love you for this, dear Meg, that whereas I never have found you to be a loiterer (your learning, which is not ordinary, but in all kind of sciences most excellent, evidently showing how painfully you have proceeded therein), yet such is your modesty, that you had rather still accuse yourself of negligence than vainly boast of diligence; except you mean by this your speech that you will be hereafter so diligent that your former endeavors, though indeed they were great and praiseworthy, yet in respect of your future diligence, may be called negligence. If it be so that you mean (as I do verily think you do), I imagine nothing can happen to me more fortunate, nothing to you, my dearest daughter, more happy; for, as I have earnestly wished that you might spend the remainder of your life in studying physic and holy Scriptures, by the which there shall never be helps wanting unto you, for the end of man's life; which is to endeavor that a sound mind be in a healthful body, of which studies you have already laid some foundations, and you shall never want matter to build thereupon; so now I think that some of the first years of your youth, yet flourishing, may be very well bestowed in human learning and the liberal arts, both because your age may best struggle with those difficulties, and for that it is uncertain whether, at any time else, we shall have the commodity of so careful, so loving, and so learned a master; to let pass, that by this kind of learning, our judgments are either gotten, or certainly much helped thereby. I could wish, dear Meg, that I might talk with you a long while about these matters, but behold, they which bring on supper interrupt me, and call me away. My supper cannot be so sweet unto me as this my speech with you is, if I were not to respect others more than myself. Farewell, dearest daughter, and commend me kindly to your husband, my loving son, who maketh me rejoice for that he studieth the same things you do; and whereas I am wont always to counsel you to give place to your husband, now, on the other side, I give you license to strive to master him in the knowledge of the sphere. Farewell again and again. Commend me to all your schoolfellows, but to your master especially.

Early Rising and Morning Occupation in Utopia.

Sir Thomas More, in his *Utopia* (Scheme of a Happy Republic), pictures his ideal people disposing of their time and occupations so as to secure the sufficient use of all their faculties of mind and body. While they gave only six hours to labor, they devoted a portion of their evenings to recreation,—in summer, the early hour after supper in their gardens; and in both summer and winter, to music and discourse; and after eight hours devoted to sleep, "a great many, both men and women, of all ranks, go to hear lectures of one sort or another, according to the variety of their inclinations," which lectures are "every morning before daybreak." In this suggestion he embodies his own daily habit of early rising, and his devotion of those hours to reading, writing, and contemplation.

ROGER ASCHAM AND THE LADY JANE GREY.

[From Walter Savage Landor's "Imaginary Conversations of Literary Men and Statesmen." Volume II., p. 79-84.]

Ascham.—Thou art going, my dear young lady, into a most awful state; thou art passing into matrimony and great wealth. God hath willed it so: submit in thankfulness.

Thy affections are rightly placed and well distributed. Love is a secondary passion in those who love most, a primary in those who love least. He who is inspired by it in a great degree, is inspired by honor in a greater: it never reaches its plentitude of growth and perfection, but in the most exalted minds. . . . Alas! alas!

Jane.—What aileth my virtuous Ascham? what is amiss? why do I tremble?

Ascham.—I remember a sort of prophecy, made three years ago: it is a prophecy of thy condition and of my feelings on it. Recollectest thou who wrote, sitting upon the seabeach, the evening after an excursion to the Isle of Wight, these verses?

Invisibly bright water! so like air,
On looking down I feared thou couldst not bear
My little bark, of all light barks most light,
And looked again . . . and drew me from the sight,
And, hanging back, breathed each fresh gale aghast,
And held the bench, not to go on so fast.

Jane.—I was very childish when I composed them; and, if I had thought any more about the matter, I should have hoped you had been too generous to keep them in your memory, as witnesses against me.

Ascham.—Nay, they are not much amiss for so young a girl, and there being so few of them, I did not reprove thee. Half an hour, I then thought, might have been spent more unprofitably; and I now shall believe it firmly, and if thou wilt but be led by them to meditate a little, on the similarity of situation in which thou then wert to what thou art now in.

Jane.—I will do it, and whatever else you command me; for I am too weak by nature and very timorous, unless where a strong sense of duty holdeth me and supporteth me: there God acteth, and not his creature.

Those were with me at sea who would have been attentive to me, if I had seemed to be afraid, even the worshipful men and women were in the company; so that something more powerful threw my fear overboard: but I never will go again upon the water.

Ascham.—Exercise that beauteous couple, that mind and body, much and variously, but at home, at home, Jane! indoors, and about things indoors; for God is there too. We have rocks and quicksands on the banks of our Thames, O lady, such as ocean never heard of; and many, (who knows how soon!) may be engulphed in the smooth current under their garden walls.

Jane.—Thoroughly do I now understand you. Yes indeed, I have read evil things of courts; but I think nobody can go out bad thence who entereth good, if timely and true warning shall have been kindly and freely given.

Ascham.—I see perils on perils which thou dost not see, although thou art wiser than thy poor old master. And it is not because love hath blinded thee, for that surpasseth his supposed omnipotence; but it is because thy tender heart, having always lent affectionately upon good, hath felt and known nothing of evil.

I once persuaded thee to reflect much: let me now persuade thee to avoid the habitude of reflection, to lay aside books, and to gaze carefully and stedfastly on what is under and before thee.

JANE.—I have well bethought me of all my duties: O how extensive they are! what a goodly and fair inheritance! But tell me, wouldst thou command me never more to read Cicero and Epictetus and Polybius? the others I do resign unto thee: they are good for the arbor and for the gravel walk: but leave unto me, I beseech thee, my friend and father, leave unto me, for my fireside and for my pillow, truth, eloquence, courage and constancy.

ASCHAM.—Read them on thy marriagebed, on thy childbed, on thy deathbed! Thou spotless undrooping lily, they have fenced thee right well! These are the men for men: these are to fashion the bright and blessed creatures, O Jane, whom God one day shall smile upon in thy chaste bosom . . . Mind thou thy husband.

JANE.—I sincerely love the youth who hath espoused me; I love him with the fondest, the most solicitous affection. I pray to the Almighty for his goodness and happiness, and do forget at times, unworthy supplicant! the prayers I should have offered for myself. O never fear that I will disparage my kind religious teacher, by disobedience to my husband, in the most trying duties.

ASCHAM.—Gentle is he, gentle and virtuous: but time will harden him: time must harden even thee, sweet Jane! Do thou, complacently and indirectly, lead him from ambition.

JANE.—He is contented with me and with home.

ASCHAM.—Ah Jane, Jane! men of high estate grow tired of contentedness.

JANE.—He told me he never liked books unless I read them to him. I will read them to him every evening: I will open new worlds to him, richer than those discovered by the Spaniard; I will conduct him to treasures . . . O what treasures! . . . on which he may sleep in innocence and peace.

ASCHAM.—Rather do thou walk with him, ride with him, play with him, be his faery, his page, his everything that love and poetry have invented: but watch him well, sport with his fancies; turn them about like the ringlets round his cheeks; and if ever he meditate on power, go, toss up thy baby to his brow, and bring back his thoughts into his heart by the music of thy discourse.

Teach him to live unto God and unto thee: and he will discover that women, like the plants in woods, derive their softness and tenderness from the shade.

ADMIRAL LORD COLLINGWOOD, ON THE EDUCATION OF HIS DAUGHTERS,

To his Daughter.

OCEAN, AT MALTA, *Feb.* 5, 1809.

I received your letter, my dearest child; and it made me very happy to find that you and dear Mary were well, and taking pains with your education. The greatest pleasure I have amidst my toils and troubles is, in the expectation which I entertain of finding you improved in knowledge, and that the understanding which it hath pleased God to give you both, has been cultivated with care and assiduity. Your future happiness and respectability in the world depend on the diligence with which you apply to the attainment of knowledge at this period of your life; and I hope that no negligence of your own will be a bar to your progress. When I write to you, my beloved child, so much interested am I that you should be amiable, and worthy of the friendship and esteem of good and wise people, that I cannot forbear to second and enforce the instruction which you receive, by admonition of my own, pointing out to you the great advantages that will result from a temperate conduct and sweetness of manner, to all people, on all occasions. It does not follow that you are to coincide and agree in opinion with every ill-judging person; but, after showing them your reason for dissenting from their opinion, your argument and opposition to it should not be tinctured with anything offensive. Never forget for one moment that you are a gentlewoman,—and all your words and all your actions should mark you gentle. I never knew your mother—your dear, your good mother—say a harsh or a hasty thing to any person in my life. Endeavor to imitate her. I am quick and hasty in my temper; my sensibility is touched sometimes with a trifle, and my expression of it sudden as gunpowder; but, my darling, it is a misfortune which, not having been sufficiently restrained in my youth, has caused me much pain. It has, indeed, given me more pain to subdue this natural impetuosity than anything I ever undertook. I believe that you are both mild; but if ever you feel in your little breasts that you inherit a particle of your father's infirmity, restrain it, and quit the subject that has caused it, until your serenity be recovered. So much for mind and manners; next for accomplishments.

No sportsman ever hits a partridge without aiming at it; and skill is acquired by repeated attempts. It is the same thing in every art; unless you aim at perfection, you will never attain it; but frequent attempts will make it easy. Never, therefore, do anything with indifference; whether it be to mend a rent in your garment, or to finish the most delicate piece of art, endeavor to do it as perfectly as it is possible. When you write a letter, give it your greatest care, that it may be as perfect in all its parts as you can make it. Let the subject be sense, expressed in the most plain, intelligible, and elegant manner that you are capable of. If, in a familiar epistle, you should be playful and jocular, guard carefully that your wit be not sharp, so as to give pain to any person; and before you write a sentence, examine it, even the words of which it is composed, that there be nothing vulgar or inelegant in them. Remember, my dear, that your letter is the picture of your brains; and those whose brains are a compound of folly, nonsense, and impertinence, are to blame to exhibit them to the contempt of the world, or the pity of their friends. To write a letter with negligence, without proper stops, with crooked lines, and great, flourishing dashes, is inelegant; it argues either great ignorance of what is proper, or great ignorance towards the person to whom it is addressed, and is, consequently, disrespectful. It makes no amends to add an apology, for having scrawled a sheet of paper, of bad pens, ou should mend them; or want of time, for nothing is more important ou, or to which your time can be more properly devoted. I think I can w the character of a lady pretty nearly by her handwriting. The dashers all impudent, however they may conceal it from themselves or others; and scribblers flatter themselves with a vain hope, that, as their letter cannot read, it may be mistaken for sense. I am very anxious to come to England, r I have lately been unwell. The greatest happiness which I expect there, to find that my dear girls have been assiduous in their learning. May God lmighty bless you, my beloved little Sarah, and sweet Mary too.

Extracts from Letters to Lady Collingwood.

This day, my love, is the anniversary of our marriage; and I wish you many happy returns of it. If ever we have peace, I hope to spend my latter days amid my family, which is the only sort of happiness which I can enjoy. After this life of labor to retire to peace and quietness, is all I look for in the world. Should we decide to change the place of our dwelling, our route would, of course, be to the southward of Morpeth; but, then, I should be forever regretting those beautiful views, which are nowhere to be exceeded, and even the rattling of that old wagon that used to pass our door at six o'clock in a winter's morning, had its charms. The fact is, whenever I think how I am to be happy again, my thoughts carry me back to Morpeth, where, out of the fuss and parade of the world, surrounded by those I loved most and who loved me, I enjoyed as much happiness as my nature is capable of. Many things that I see in the world give me a distaste for its finery.

How do the dear girls go on? I would have them taught geometry, which is, of all sciences in the world, the most entertaining: it expands the mind more to the knowledge of all things in nature, and better teaches to distinguish between truths, and such things as have the appearance of being truths, yet are not, than any other. Their education, and the proper cultivation of the sense which God has given them, are the objects on which my happiness most depends. To inspire them with a love of everything that is honorable and virtuous, though in rags, and with contempt for vanity in embroidery, is the way to make them the darlings of my heart. They should not only read, but it requires a careful selection of books; nor should they ever have access to two at the same time; but, when a subject is begun, it should be finished before anything else is undertaken. How would it enlarge their minds if they could acquire a sufficient knowledge of mathematics and astronomy, to give them an idea of the beauty and wonders of the creation! I am persuaded that the generality of people, and, particularly, fine ladies, only adore God because they are told it is proper, and the fashion to go to church; but I would have my girls gain such knowledge of the works of the creation, that they may have a fixed idea of the nature of that Being who could be the author of such a world. Whenever they have that, nothing on this side the moon will give them much uneasiness of mind. I do not mean that they should be stoics, or want the common feelings for the sufferings that flesh is heir to; but they would then have a source of consolation for the worst that could happen. . . .

Do not let our girls be made fine ladies; but give them a knowledge of the world which they have to live in, that they may take care of themselves when you and I are in heaven. They must do everything for themselves, and never read novels, but history, travels, essays, and Shakspeare's plays, as often as they please. What they call books for young persons are nonsense. The memory should be strengthened by getting by heart such speeches and noble sentiments from Shakspeare or Roman history, as deserve to be imprinted on the mind. Give them my blessing, and charge them to be diligent.

FLORENCE NIGHTINGALE AND TRAINED NURSES.

FLORENCE NIGHTINGALE, the daughter of William Edward Shore, of Derbyshire (who assumed by royal warrant the name, Nightingale, in 1815, on inheriting an estate of a branch of the family in Staffordshire), was born in Florence, Italy, in 1820. To the careful culture of the best schools at home, she added the highest advantages of foreign travel—a familiar knowledge of modern languages, and the rarer improvement to head and heart of a thoughtful study of galleries of art, and the well managed hospitals and infirmaries of the continent. With a natural aptitude of disposition and manner for the duties of the sick room, she was early impressed with the practical superiority of Sisters of Charity, who were trained in the art of applying a knowledge of the human system, of diseases and accidents, and of remedial agents, in hospital service. In 1849 she entered as volunteer nurse in Fliedner's Institution for Deaconesses at Kaiserswerth, and on her return, assumed the charge of the Sanitarium for invalid and infirm governesses in London, which she soon brought into efficient management.

In 1854, on the solicitation of the Secretary of War (Sidney Herbert), Miss Nightingale proceeded to the Crimea, in charge of a staff of volunteer nurses, to do for the sick and wounded of the British army, what the Sisters of Charity were already doing in the French military hospitals. The simple record of the successful labors of this delicately reared, but practically trained woman, and her staff of assistants, is the brightest chapter in the history of the war.

At the Scotch Crimean banquet at Edinburg, Sir John McNeill, who was one of the Government Commissioners sent to the seat of war to inspect the condition of the army, thus spoke of the services of Miss Nightingale:—

Though I am unable to tell you who was responsible for leaving the sick in that wretched condition, I am able to tell you who rescued them from it—Florence Nightingale. [Prolonged applause.] Except the aid received from the Times fund, she provided, at her own expense, linen for the numerous patients, which could not have cost less than £2,000 or £3,000. [Applause.] She found the hospitals unprovided with any establishment for washing the linen, and with the aid of the ladies and the nurses, made arrangements for that purpose, some of the ladies taking an active share in that menial labor. She found the hospitals without any trained cooks, and she established a private kitchen, in which food fitted for those who were most reduced was prepared, and I have no doubt contributed to save the life of many a brave man. [Cheers.]

Foreseeing that the accommodation would be insufficient, she urged the repair of a large wing of the Barrack hospital, which was so dilapidated as to be uninhabitable, and the repairs were commenced; but the workmen soon struck because they were unpaid, and the officer who had charge of the work could not procure the requisite funds. She advanced them from her own means, and, curiously enough, the very day on which these repairs were completed, a number of sick and wounded sufficient to fill that wing, and for whom there was no other accommodation, arrived from the Crimea, and were placed there. [Cheers.] But the wards were as empty as barns, and the hospital authorities declined to provide the requisite furniture. She purchased it at her own cost, and furnished the wards, but the amount has since been repaid. I mention these things, and I might tell you of many more, because many of you may not know or may not remember them, and very few, I am sure, have ever heard or will ever hear of them from her.

But it is needless to dwell further upon services of the sick and wounded which are known to the whole world; which have redounded to the honor of the nation;

have made her name dear to the army and the country, and which secure
a place in the history of our times as the worthy leader of one of the most
kable movements which this war, in many respects memorable, has pro-
l. I can not, however, refrain from stating one or two facts creditable to the
ers of the British army, which ought to be known. Miss Nightingale had,
ourse, occasion to be in the hospital wards at all hours, and she informed me
, she never heard even an oath from a soldier. [Applause.] And, lest you
uld imagine this propriety of behavior proceeded from deference and respect
ner personally, I will read a very short extract from a letter written by a lady
o was in another hospital. She says: "In bearing testimony, as I do most
atefully, to the extreme delicacy and respect with which I was in every instance
eated by our soldiers, I am but echoing the sentiments of every lady who has
een in the Eastern hospitals."

In answer to my inquiry whether she had observed on the part of the soldiers nuch reluctance to leave the hospital and return to their duty in the Crimea, Miss Nightingale replied that she did not remember having been asked to write one letter for any soldier with a view to prolong his stay in the hospital, but she believed she had written five or six hundred for men who wished to inform their officers that they considered themselves fit for duty. Such is the character which the soldiers of the army of the East have established for themselves in action, in camp during the worst times, and in hospital. I am confident that they will not throw away at home the high reputation they acquired in foreign service. [Applause.] Every one knows the public services of Florence Nightingale, but those only who have had the honor of meeting her can know the refinement and truly feminine delicacy of her mind and manners, or the unconsciousness of having done any thing great or remarkable that pervades her whole deportment and conversation.

Far from dwelling upon the past, or taking any pride in the applause which has followed her unsought, the whole energies of her powerful, highly cultivated, and essentially practical intellect are already directed toward further and more permanent plans of usefulness. Truly pious and thoroughly Protestant in her sentiments, her attachment to the Church of England is free from any tincture of sectarian bitterness. [Cheers.] She has not so read her Bible as to believe that it inculcates ill-will toward any class of God's creatures. Ready to extend her assistance to the sick and wounded of all persuasions without distinction, she has freely availed herself of the assistance of all.

Holding fast her own principles with a firm composure of a strong mind and a settled conviction, she avoids alike the extremes of High Church and Low Church, and hears without resentment the extravagant and contradictory absurdities that are circulated in regard to her opinions. She appears to be too intent upon doing the good which it may be permitted her to do in the walk she has chosen, to care for either the evil or the good that is spoken of her—otherwise than that it may affect her usefulness. It is not from us, and it is not here, that she seeks praise or reward. But I should be acting little in accordance with her practice, if, in speaking of the services rendered to the sick and wounded, I omitted to direct your attention to the obligations which she and all of us owe to the ladies who shared her pious labors; and I may be permitted, without disparagement to others, to remind you that some of the most prominent were our own countrywomen.

Miss Shaw Stewart had charge of the nurses in the general hospital at Balaklava; Mrs. Mackenzie, and after her Miss Erskine, in the naval hospital at Therapia—the first a member of a leading family among our untitled aristocracy; the second, daughter of one of the foremost men of our generation, the late Dr. Chalmers, [loud cheers;] the third, daughter of the accomplished historian of the Mahomedan conquest of India, and granddaughter of the late Sir James Mackintosh. And there were other Scottish ladies in less prominent positions. Our country, therefore, was worthily represented in the hospitals of the East. [Cheers.] Let us hope that the moral and material improvements, the higher standard of feeling and of comfort which the wise benevolence and patriotism of Miss Nightingale and the ladies who aided her efforts have introduced into our military hospitals, will not be permitted to pass away with the occasion that gave rise to them.

At the end of two years Miss Nightingale returned to England, with her constitution over-tasked, and her health permanently impaired. She was received by the Queen and the people with every demonstration of gratitude and respect. The only form in which she would allow any public memorial of her services to take, was the establishment of an Institution for the training of women as nurses of the sick, and the educating of persons of the requisite qualities of character and business capacity for the superintendence of hospitals and infirmaries. The enterprise was taken up with great enthusiasm, and a Fund called the Nightingale Fund (stated to amount in 1870 to £40,000), was soon subscribed, and out of the income a Training School has been established in connection with St. Thomas' Hospital, London. In a beautiful introduction to a memoir of Miss Agnes Elizabeth Jones, one of her pupils and dear friend, who died in charge of the Training School for Nurses in Liverpool, in 1868, Miss Nightingale thus sets forth the object of her Institution.

We require that a woman be sober, honest, truthful, without which there is no foundation on which to build.

We train then in habits of punctuality, quietness, trustworthiness, personal neatness. We teach her how to manage the concerns of a large ward or establishment.

We train her in dressing wounds and other injuries, and in performing all those minor operations which nurses are called upon day and night to undertake.

We teach her how to manage helpless patients in regard to moving, changing, feeding, temperature, and the prevention of bed-sores.

She has to make and apply bandages, line splints for fractures, and the like. She must know how to make beds with as little disturbance as possible to their inmates. She is instructed how to wait at operations, and as to the kind of aid the surgeon requires at her hands. She is taught cooking for sick; the principles on which sick wards ought to be cleansed, aired, and warmed; the management of convalescents; and how to observe sick and maimed patients, so as to give an intelligent and truthful account to the physician or surgeon in regard to the progress of cases in the intervals between visits—a much more difficult thing than is generally supposed.

We do not seek to make "medical women," but simply nurses acquainted with the *principles* which they are required constantly to apply at the bedside.

For the future superintendent is added a course of instruction in the administration of a hospital, including, of course, the linen arrangements, and what else is necessary for a matron to be conversant with.

There are those who think that all this is intuitive in women, that they are born so, or, at least, that it comes to them without training. To such we say, By all means send us as many such geniuses as you can, for we are sorely in want of them.

The success of Miss Nightingale's endeavors in the St. Thomas' Hospital Training School for nurses, has confirmed the experience of Pastor Fliedner at Kaiserswerth, that nursing is an art, in which aptitude of head and heart may be necessary to the highest success, as 'aptness to teach' is in teaching, but both knowledge and training—knowledge of the human system, of diseases, and remedial agents, and training in the application of these agents and the ways and means of dealing with mind and body diseased, are indispensable to women of average ability.

TRAINING INSTITUTIONS FOR NURSES AT LIVERPOOL.

IE scheme of establishing a Training Institution for Nurses in ection with the Royal Infirmary, the principal hospital in Liver- l, originated in 1861 with some of the inhabitants of that city, ose names are not given in the pamphlet on "The Organization Nursing;" but the Committee of the Institution is there de- ribed as consisting, "not of benevolent enthusiasts or philanthro- ists by profession, but of practical men of business, who have bundant work and large experience in commerce, in politics, and in life, who know the value of time and money, and would not be- stow either on an enterprise in which they did not find the results proportionate to the expenditure."

The objects of the Institution are thus explained in a prospectus which was published for the purpose of obtaining the necessary funds:—

1. *To provide thoroughly educated professional nurses for the Infirmary.*—There are in the Infirmary, nurses of whose efficiency and kindness we can not speak too highly, but the supply of good hospital nurses is quite inadequate to the requirements. And the misconduct of the unsuitable ones, who, from necessity, are employed, discredits a profession which is in its nature most honorable, and would otherwise attract many whose ability and character would peculiarly fit them for its duties. We refer to the testimony of the Medical Board on this point, and need hardly point out how much might be done by a complete system of nursing to save life and health, and to make the expenditure of an hospital more effective, by giving increased power to the medical and other agencies, and by abridging the period requisite to effect a cure.

2. *To provide district or missionary nurses for the poor.*—In cases which are not suitable for, and can not be reached by, hospitals, to do in nursing what the dispensaries do for them in medical aid. We propose to furnish nurses to those districts which will, by means of local committees or individuals, find the necessary medical comforts and superintendence. The results of district nursing, though only tried on a small scale and with an imperfect organization, have been invariably satisfactory. It relieves an amount of suffering most intense in its character, and capable of alleviation, to a great extent, by a proportionately small expenditure. It does more than this; it teaches the people to nurse their own sick, and, by introducing a knowledge of sanitary laws among the working classes, tends to prevent illness and strengthen health.

In a merely economical point of view, by restoring parents to their work and place, it often prevents whole families from steadily sinking into hopeless poverty, misery, and vice, the consequences of which, in the end, take vengeance on society for its neglected duties.

In a moral and political point of view, aid thus given to the suffering poor does away with an irritation against God and man, the extent of which is not suspected by those who have not been in a position to see it. Such irritation is the frequent result of extreme suffering, when unmitigated by assistance from those who have the power to give it, leading men to brood bitterly over an inequality of conditions to which they are not reconciled by experiencing in their need the alleviation which wealth and knowledge could and should have provided. Assistance thus bestowed would open the hearts of the sufferers and of their families to all benevolent persons in their attempts to benefit the working classes, physically, morally, and religiously.

3. *To provide sick-nurses for private families.*—It is a fact well known by medical men that far more patients die unnecessarily (or live with permanently

impaired health), from defective nursing, in families who could and would gladly pay for efficient nursing, if procurable, than even under the defective nursing which, till lately, was almost general in hospitals. Most of the hospital nurses had at least some knowledge of what they were about. However devoted and watchful the relative or the private nurse may be, while she is gaining her experience of what ought to be done, the object of her care has often passed out of its reach, or her own health has given way, and death has thus multiplied its victims. If relieved by the aid of a trained nurse, she might with an easy mind have left her charge and obtained the necessary rest."

RULES OF THE LIVERPOOL NURSES TRAINING SCHOOL.

1. That the nurses are to attend the sick, both rich and poor, at hospitals or private houses, as the Committee or Lady Superintendent may appoint.

2. That when sent from the Home to attend a patient, they receive their instructions from the Lady Superintendent, and do not leave the case without communicating with her; this they can do by letter at any time.

5. That no present or gratuity of any kind be accepted by a nurse, beyond some very trifling remembrance from or of the patient.

4. That nothing belonging to a deceased patient is to be accepted by the nurse.

5. That while on duty at the Home, at the Infirmary, or in private houses, the regulations of the establishment with regard to dress are to be observed by the nurse.

6. That no male visitors to the nurses be admitted at the Home without special permission from the Lady Superintendent.

7. That the nurses shall not take more than 1½ pint each of table beer in the twenty-four hours, and no wine or spirits without a medical order; and that they shall carefully avoid adding unnecessarily to the expenses of a household either in board or washing.

8. That a nurse is always to bring back with her a certificate of conduct and efficiency from the family of her patient or from the medical attendant.

It is expected that the nurses will bear in mind the importance of the situation they have undertaken, and will evince, at all times, the self-denial, forbearance, gentleness, and good temper so essential in their attendance on the sick, and also to their characters as Christian nurses. They are to take the whole charge of the sick room, doing every thing that is requisite in it, when called upon to do so. When nursing in families where there are no servants, if their attention be not of necessity wholly devoted to their patient, they are expected to make themselves generally useful. They are also most earnestly charged to hold sacred the knowledge which, to a certain extent, they must obtain of the private affairs of households or individuals they may attend.

A building (the Nurse's Home) capable of accommodating a staff of nurses with a superintendent, a deputy, and three servants, was erected at the expense of an individual (Mr. W. Rathbone, merchant of Liverpool), on the grounds of the Infirmary, and placed under the charge of Miss Agnes Elizabeth Jones (daughter of Col. Jones of Fahan on the Lough Swilly, Ireland), who spent some time in the Nightingale School in connection with St. Thomas' Hospital, and in Kings College Hospital, to learn the system of these two nursing schools, the method of study, and the surgical and medical training pursued there. In the organization and instruction of the Training Department, Miss Jones was eminently successful, until her health failed. She died February 19, 1868, in the midst of her usefulness, with 50 nurses, 150 pauper scourers, and 1,350 patients under her charge.

FEMALE EDUCATION.

Sir James Mackintosh thus writes in his Journal, after devoting a fortnight (at intervals) to Madame de Sevigné's Letters:

POLITE CONVERSATION AND FAMILIAR LETTERS.

When a woman of feeling, fancy, and accomplishment has learned to converse with ease and grace, from long intercourse with the most polished society, and when she writes as she speaks, she must write letters as they ought to be written; if she has acquired just as much habitual correctness as is reconcilable with the air of negligence. A moment of enthusiasm, a burst of feeling, a flash of eloquence may be allowed; but the intercourse of society, either in conversation or in letters, allows no more. Though interdicted from the long-continued use of elevated language, they are not without a resource. There is a part of language which is disdained by the pedant or the declaimer, and which both, if they knew its difficulty, would dread; it is formed of the most familiar phrases and turns, in daily use by the generality of men, and is full of energy and vivacity, bearing upon it the mark of those keen feelings and strong passions from which it springs. It is the employment of such phrases which produces what may be called colloquial eloquence. Conversation and letters may be thus raised to any degree of animation, without departing from their character. Any thing may be said, if it be spoken in the tone of society; the highest guests are welcome, if they come in the easy undress of the club; the strongest metaphor appears without violence, if it is familiarly expressed; and we the more easily catch the warmest feeling, if we perceive that it is intentionally lowered in expression, out of condescension to our calmer temper. It is thus that harangue and declamations, the last proof of bad taste and bad manners in conversation, are avoided, while the fancy and the heart find the means of pouring forth all their stores. To meet this despised part of language in a polished dress, and producing all the effects of wit and eloquence, is a constant source of agreeable surprise. This is increased when a few bolder and higher words are happily wrought into the texture of this familiar eloquence. To find what seems so unlike author-craft in a book, raises the pleasing astonishment to its highest degree.

Letters must not be on a subject. Lady Mary Wortley's letters on her Journey to Constantinople, are an admirable book of travels; but they are not letters. A meeting to discuss a question of science is not conversation; nor are papers written to another, to inform or discuss letters. Conversation is relaxation, not business, and must never appear to be occupation; nor must letters. Judging from my own mind, I am satisfied of the falsehood of the common notion, that these letters owe their principal interest to the anecdotes of the court of Louis XIV. A very small part of the letters consist of such anecdotes. Those who read them with this idea, must complain of too much Grignan. I may now own that I was a little tired during the two first volumes: I was not quite charmed and bewitched till the middle of the collection, where there are fewer anecdotes of the great and famous. I felt that the fascination grew as I became a member of the Sevigné family; it arose from the history of the immortal mother and the adored daughter, and it increased as I knew them in more minute detail; just as my tears in the dying chamber of Clarissa depend on my having so often drank tea with her in those early volumes, which are so audaciously called dull by the profane vulgar. I do not pretend to say that they do not owe some secondary interest to the illustrious age in which they were written; but this depends merely on its tendency to heighten the dignity of the heroine, and to make us take a warmer concern in persons who were the friends of those celebrated men and women, who are familiar to us from our childhood.

I once thought of illustrating my notions by numerous examples from 'La Sevigné.' The style of Madame de Sevigné is evidently copied, not only by her worshiper, Walpole, but even by Gray; who, notwithstanding the extraordinary merits of his matter, has the double stiffness of an imitator, and of a college recluse.

POWER OF CHARACTER—UNCONSCIOUS INFLUENCE.

From "Sermons for the New Life, by Horace Bushnell."

THE following passages, in which Dr. Bushnell sets forth in a novel and masterly manner the power, which a Christian exerts in the circle in which he moves, by what he *is*, in distinction from what he professes, is strikingly true of the Teacher. So it seemed to us when we first heard it delivered in the old North Church, Hartford, forty years ago, and so it seems to us now, when we have come to estimate more highly than ever before, the subtle, yet beneficent and inspiring influences which stream out from the voice, manner, action,—the daily life of the true teacher, as he goes out and in before his pupils, and discharges all his manifold duties in and out of the school-room. The train of thought is suggested by the record in John's Gospel (xx, 8), in which the unhesitating step of Peter, as he approaches and at once enters the sepulchre, decides John,—"*then went in also that other disciple.*"

There are two sorts of influence belonging to man; that which is active or voluntary, and that which is unconscious;—that which we exert purposely or in the endeavor to sway another, as by teaching, by argument, by persuasion, by threatenings, by offers and promises,—and that which flows out from us, unawares to ourselves, the same which Peter had over John when he led him into the sepulchre. The importance of our efforts to do good, that is of our voluntary influence, and the sacred obligation we are under to exert ourselves in this way are often and seriously insisted on.

But there needs to be produced, at the same time, and partly for this object, a more thorough appreciation of the relative importance of that kind of influence, or beneficence which is insensibly exerted. The tremendous weight and efficacy of this, compared with the other, and the sacred responsibility laid upon us in regard to this, are felt in no such degree or proportion as they should be; and the consequent loss we suffer in character, as well as that which the Church suffers in beauty and strength, is incalculable.

The influences we exert unconsciously will almost never disagree with our real character. They are honest influences, following our character, as the shadow follows the sun. And, therefore, we are much more certainly responsible for them, and their effects on the world. They go streaming from us in all directions, though in channels that we do not see, poisoning or healing around the roots of society, and among the hidden wells of character. If good ourselves, they are good; if bad, they are bad. And, since they reflect so exactly our character, it is impossible to doubt our responsibility for their effects on the world. We must answer not only for what we do with a purpose, but for the influence we exert insensibly.

Histories and biographies make little account of the power men exert insensibly over each other. They tell how men have led armies, established empires, enacted laws, gained causes, sung, reasoned, and taught;—always occupied in setting forth what they do with a purpose. But what they do without a purpose, the streams of influence that flow out from their persons unbidden on the world, they can not trace or compute, and seldom even mention. So also the public laws make men responsible only for what they do with a positive purpose, and take no account of the mischiefs or benefits that are communicated, by their noxious or healthful example. The same is true in the discipline of families, churches, and schools; they make no account of the things we do, except we will them. What we do insensibly passes for nothing, because no human government can trace such influences with sufficient certainty to make their authors responsible.

But you must not conclude that influences of this kind are significant, because they are unnoticed and noiseless. How is it in the natural world? Behind the mere show, the outward noise and stir of the world, nature always conceals her hand of control, and the laws by which she rules. Who ever saw with the eye, for example, or heard with the ear, the exertions of that tremendous astronomic force, which every moment holds the compact of the physical universe together? The lightning is, in fact, but a mere fire-fly spark in comparison; but, because it glares on the clouds, and thunders so terribly in the ear, and rives the tree or the rock where it falls, many will be ready to think that it is a vastly more potent agent than gravity.

The Bible calls the good man's life a light, and it is the nature of light to flow out spontaneously in all directions, and fill the world unconsciously with its beams. So the Christian shines, it would say, not so much because he will, as because he is a luminous object. Not that the active influence of Christians is made of no account in the figure, but only that this symbol of light has its propriety in the fact that their unconscious influence is the chief influence, and has the precedence in its power over the world. And yet, there are many who will be ready to think that light is a very tame and feeble instrument, because it is noiseless. An earthquake, for example, is to them a much more vigorous and effective agency. Hear how it comes thundering through the solid foundations of nature. It rocks a whole continent. The noblest works of man,—cities, monuments, and temples,—are in a moment leveled to the ground, or swallowed down the opening gulfs of fire. Little do they think that the light of every morning, the soft and genial, and silent light, is an agent many times more powerful. But let the light of the morning cease and return no more, let the hour of morning come, and bring with it no dawn: the outcries of a horror-stricken world fill the air, and make, as it were, the darkness audible. The beasts go wild and frantic at the loss of the sun. The vegetable growths turn pale and die. A chill creeps on, and frosty winds begin to howl across the freezing earth. Colder, and yet colder, is the night. The vital blood, at length, of all creatures, stops congealed. Down goes the frost toward the earth's center. The heart of the sea is frozen; nay, the earthquakes are themselves frozen in, under their fiery caverns. The very globe itself, too, and all the fellow planets that have lost their sun, are become mere balls of ice, swinging silent in the darkness. Such is the light, which revisits us in the silence of the morning. It makes no shock or scar. It would not wake an infant in his cradle. And yet it perpetually new creates the world, rescuing it, each morning as a prey, from night and chaos. So the Christian is a light, even "the light of the world," and we must not think that, because he shines insensibly or silently, as a mere luminous object, he is therefore powerless. The greatest powers are ever those which lie back of the little stirs and commotions of nature; and I verily believe that the insensible influences of good men are as much more potent than what I have called their voluntary or active, as the great silent powers of nature are of greater consequence than her little disturbances and tumults. The law of human influence is deeper than many suspect, and they lose sight of it altogether. The outward endeavors made by good men or bad to sway others, they call their influence; whereas it is, in fact, but a fraction, and, in most cases, but a very small fraction, of the good or evil that flows out of their lives. Nay, I will even go further. How many persons do you meet, the insensible influence of whose manners and character is so decided as often to thwart their voluntary influence; so that, whatever they attempt to do, in the way of controlling others, they are sure to carry the exact opposite of what they intend! And it will generally be found that, where men undertake by argument or persuasion to exert a power, in the face of qualities that make them odious or detestable, or only not entitled to respect, their insensible influence will be too strong for them. The total effect of the life is then of a kind directly opposite to the voluntary endeavor; which, of course, does not add so much as a fraction to it.

Double Line of Communication.

If we distinguish man as a creature of language, and thus qualified to communicate himself to others, there are in him two sets or kinds of language, one which is voluntary in the use, and one that is involuntary; that of speech in the literal sense, and that expression of the eye, the face, the look, the gait, the motion, the tone or cadence, which is sometimes called the natural language of the sentiments. This natural language, too, is greatly enlarged by the conduct of life, that which, in business and society, reveals the principles and spirit of men. Speech, or voluntary language, is a door to the soul, that we may open or shut at will; the other is a door that stands open evermore, and reveals to others constantly and often very clearly, the tempers, tastes, and motives of their hearts. Within, as we may represent, is character, charging the common reservoir of influence, and through these twofold gates of the soul, pouring itself out on the world. Out of one it flows at choice, and whensoever we purpose to do good or evil to men. Out of the other it flows each moment, as light from the sun, and propagates itself in all beholders.

As subjects of influence, we find every man endowed with two inlets of impression; the ear and the understanding for the reception of speech, and the sympathetic powers, the sensibilities or affections, for tinder to those sparks of emotion revealed by looks, tones, manners, and general conduct. And these sympathetic powers, though not immediately rational, are yet inlets, open on all sides, to the understanding and character. They have a certain wonderful capacity to receive impressions, and catch the meaning of signs, and propagate in us whatsoever falls into their passive molds, from others. The impressions

receive do not come through verbal propositions, and are never received
verbal proposition, it may be, in the mind, and therefore many think
hing of them. But precisely on this account are they the more powerful,
cause it is as if one heart were thus going directly into another, and carry-
g in its feelings with it. Beholding, as in a glass, the feelings of our neigh-
or, we are changed into the same image, by the assimilating power of sensi-
ility and fellow-feeling. Many have gone so far, and not without show, at
east, of reason, as to maintain that the look or expression, and even the very features of children, are often changed, by exclusive intercourse with nurses and attendants. Furthermore, if we carefully consider, we shall find it scarcely possible to doubt, that simply to look on bad and malignant faces, or those whose expressions have become infected by vice, to be with them and become familiarized to them, is enough permanently to affect the character of persons of mature age. I do not say that it must of necessity subvert their character, for the evil looked upon may never be loved or welcomed in practice; but it is something to have those bad images in the soul, giving out their expressions there, and diffusing their odor among the thoughts, as long as we live.

It is by one of these modes of communication that we are constituted members of voluntary society, and by the other, parts of a general mass, or members of involuntary society. You are all, in a certain view, individuals, and separate as persons from each other: you are also, in a certain other view, parts of a common body, as truly as the parts of a stone. Thus if you ask how it is that you and all men came, without your consent to exist in society, to be within its power, to be under its laws, the answer is, that while you are a man, you are also a fractional element of a larger and more comprehensive being, called society—be it the family, the church, the state. In a certain department of your nature, it is open; its sympathies and feelings are open. On this open side you all adhere together, as parts of a larger nature, in which there is a common circulation of want, impulse, and law. Being thus made common to each other voluntarily, you become one mass, one consolidated social body, animated by one life. And observe how far this involuntary communication and sympathy between the members of a state or family is sovereign over their character. It always results in what we call the national or family spirit; for there is a spirit peculiar to every state and family in the world. Sometimes, too, this national or family spirit takes a religious or an irreligious character, and appears almost to absorb the religious self-government of individuals. What was the national spirit of France, for example, at a certain time, but a spirit of infidelity? What is the religious spirit of Spain at this moment, but a spirit of bigotry, quite as wide of Christianity and destructive to character as the spirit of falsehood? What is the family spirit in many a house, but the spirit of gain, or pleasure, or appetite, in which every thing that is warm, dignified, genial, and good in religion, is visibly absent? Sometimes you will almost fancy that you see the shapes of money in the eyes of the children. So it is that we are led on by nations, as it were, to a good or bad immortality. Far down in the secret foundations of life and society, there lie concealed great laws and channels of influence, which make the race common to each other in all the main departments or divisions of the social mass—laws which often escape our notice altogether, but which are to society as gravity to the general system of God's works.

Instinct of Imitation in Children.

We begin our mortal experience, not with acts grounded in judgment or reason, or with ideas received through language, but by simple imitation, and, under the guidance of this, we lay our foundations. The child looks and listens, and whatsoever tone of feeling or manner of conduct is displayed around him, sinks into his plastic, passive soul, and becomes a mold of his being ever after. The very handling of the nursery is significant, and the petulance, the passion, the gentleness, the tranquillity indicated by it, are all reproduced in the child. His soul is a purely receptive nature, and that, for a considerable period, without choice or selection. A little further on, he begins voluntarily to copy every thing he sees. Voice, manner, gait; every thing which the eye sees, the mimic instinct delights to act over. And thus we have a whole generation of future men, receiving from us their very beginnings, and the deepest impulses of their life and immortality. They watch us every moment, in the family, before the hearth, and at the table; and when we are meaning them no good or evil, when we are conscious of exerting no influence over them, they are drawing from us impressions and molds of habit, which, if wrong, no heavenly discipline can wholly remove; or, if right, no bad associations utterly dissipate. Now it may be doubted, I think, whether, in all the active influence of our lives, we do as much to shape the destiny of our fellow-men, as we do in this single article of unconscious influence over children.

Power of Manner and Presence—illustrated in Paul.

It is not mere words which turn men; it is the heart mounting, uncalled, into the expression of the features; it is the eye illuminated by reason, the look beaming with goodness; it is the tone of the voice, that instrument of the soul, which changes quality with such amazing facility, and gives out in the soft, the tender, the tremulous, the firm, every shade of emotion and character. And so much is there in this, that the moral stature and character of the man that speaks are likely to be well represented in his manner. If he is a stranger, his way will inspire confidence and attract good will. His virtues will be seen, as it were, gathering round him to minister words and forms of thought, and their voices will be heard in the fall of his cadences. And the same is true of bad men, or men who have nothing in their character corresponding to what they attempt to do. If without heart or interest you attempt to move another, the involuntary man tells what you are doing, in a hundred ways at once. A hypocrite, endeavoring to exert a good influence, only tries to convey by words what the lying look, and the faithless affectation, or dry exaggeration of his manner, perpetually resists. We have it for a fashion to attribute great or even prodigious results to the voluntary efforts and labors of men. Whatever they effect is commonly referred to nothing but the immediate power of what they do. Let us take an example, like that of Paul, and analyze it. Paul was a man of great fervor and enthusiasm. He combined, withal, more of what is lofty and morally commanding in his character, than most of the very distinguished men of the world. Having this for his natural character, and his natural character exalted and made luminous by christian faith, and the manifest indwelling of God, he had of course an almost superhuman sway over others. Doubtless he was intelligent, strong in argument, eloquent, active, to the utmost of his powers, but still he moved the world more by what he was than by what he did. The grandeur and spiritual splendor of his character were ever adding to his active efforts an element of silent power, which was the real and chief cause of their efficacy. He convinced, subdued, inspired, and led, because of the half divine authority which appeared in his conduct, and his glowing spirit. He fought the good fight, because he kept the faith, and filled his powerful nature with influences drawn from higher worlds.

The Silent Power of Christ—the Light of God.

And here I must conduct you to a yet higher example, even that of the Son of God, the light of the world. Men dislike to be swayed by direct, voluntary influence. They are jealous of such control, and are therefore best approached by conduct and feeling, and the authority of simple worth, which seem to make no purposed onset. If goodness appears, they welcome its celestial smile; if heaven descends to encircle them, they yield to its sweetness; if truth appears in the life, they honor it with a secret homage; if personal majesty and glory appear, they bow with reverence, and acknowledge with shame, their own vileness. Now it is on this side of human nature that Christ visits us, preparing just that kind of influence which the spirit of truth may wield with the most persuasive and subduing effect. It is the grandeur of his character which constitutes the chief power of his ministry, not his miracles or teaching apart from his character. Miracles were useful, at the time, to arrest attention, and his doctrine is useful at all times as the highest revelation of truth possible in speech; but the greatest truth of the gospel, notwithstanding, is Christ himself—a human body become the organ of the divine nature, and revealing, under the conditions of an earthly life, the glory of God! The Scripture writers have much to say, in this connection, of the image of God; and an image, you know, is that which simply represents, not that which acts, or reasons, or persuades. Now it is this image of God which makes the center, the sun itself, of the gospel. The journeyings, teachings, miracles, and sufferings of Christ, all had their use in bringing out this image, or what is the same, in making conspicuous the character and feelings of God, both toward sinners and toward sin. And here is the power of Christ—it is what of God's beauty, love, truth, and justice shines through him. It is the influence which flows unconsciously and spontaneously out of Christ, as the friend of man, the light of the world, the glory of the Father, made visible.

The Christian is called a light, not lightning. In order to act with effect on others, he must walk in the Spirit, and thus become the image of goodness: he must be so akin to God, and so filled with His dispositions, that he shall seem to surround himself with a hallowed atmosphere. It is folly to endeavor to make ourselves shine before we are luminous. If the sun without his beams should talk to the planets, and argue with them till the final day, it would not make them shine; there must be light in the sun itself, and then they will shine, of course. And this, my brethren, is what God intends for you all. It is the great idea of his gospel, and the work of his spirit, to make you lights in the world. His greatest joy is to give you character, to beautify your example, to exalt your principles, and make you each the depository of his own almighty grace. But in order to this, something is necessary on your part—a full surrender of your mind to duty and to God, and a perpetual desire of this spiritual intimacy; having this, having a participation thus of the goodness of God, you will as naturally communicate good as the sun communicates his beams.

RECENT SCHOOL CODES AND STATISTICS.

I. SWITZERLAND.

THE last national census of the different Cantons was taken on the first day of December, 1870, with the following general results:

Males,	1,305,670
Females,	1,364,675
Total,	2,670,345
Of Teutonic race,	2,000,000
Celtic race,	670,000
Number of families,	557,820
Number of houses,	390,318
Families speaking German,	384,561
" " French,	134,183
" " Italian,	30,293
" " Romonsch,	8,759
" " English,	19
" " Dutch, Polish, Magyar, Russ, and Spanish, each	5

We arrange the results of the Census of 1870 by Cantons and Half Cantons, in a Table; which will also present the date when the several Cantons came into the Federal Compact, together with the Cantonal Budget for Army and Schools in 1870.

CANTONS AND HALF CANTONS.	Year of Admiss'n.	Population, Dec., 1870.	Square Miles.	CANTONAL EXPENSE. Schools.	Army.
1. Bern,	1353	501,875	2,615	1,076,558fr.	858,839fr.
2. Zurich,	1351	284,477	659	881,804	516,449
3. Vaud,	1803	229,596	1,226	398,597	562,170
4. Aargau,	1803	198,731	538	500,668	334,290
5. St. Gallen,	1803	191,039	781	167,586	326,593
6. Luzern,	1332	132,154	480	201,168	212,485
7. Ticino,	1803	119,312	1,082	122,076	111,093
8. Friborg,	1481	110,536	632	160,683	168,497
9. Valais,	1814	97,409	2,016	37,503	146,910
10. Neufchatel,	1814	95,563	308	177,097	150,874
11. Thurgau,	1803	93,260	384	131,048	117,575
12. Graubünden,	1803	92,793	2,706	104,127	153,017
13. Geneva,	1814	89,416	110	335,445	227,840
14. Solothurn,	1481	74,636	292	101,630	145,008
15. Schwyz,	1307	47,728	358	14,266	34,886
16. Schaffhausen,	1501	37,650	118	109,284	77,084
17. Glarus,	1352	35,223	265	14,789	52,337
18. Zug,	1352	20,986	91	12,652	18,805
19. Uri,	1307	16,095	418	12,106	20,947
HALF CANTONS.					
1. Basel-land,	1501	54,051	166	455,790	164,450
2. Basel-stadt,		47,124	15		
3. Appenzell-outer-Rhoden,	1573	48,765	102		
4. Appenzell-inner-Rhoden,		11,926	61	51,315	80,531
5. Unterwalden-ob-wald,	1307	14,437	186		
6. Unterwalden-nid-wald,		11,711	112	11,594	23,225
		2,656,493	15,721	5,157,756fr.	4,508,901fr.

The foregoing Table is made up from recent official statistics furnished by the Federal authorities at Berne to Wm. Hepworth Dixon, and published in "*The Switzers*," from which we gather the following paragraphs, in some instances somewhat condensed:

Although there are 22 Cantons, each recognized by the Federal Constitution as sovereign in matters strictly local, three of these original Cantons have been sundered by party feuds, each of the six Half-Cantons holding a portion of the divided sovereignty, as well as of the representation in the Federal Council.

Canton Basle [Basel, as spelt by Mr. Dixon, and many authors,] was formally divided, in 1833, in consequence of old local jealousies springing from city and country considerations,—Basle-stadt or town, having its capital and constituency in the old city; and Basle-land, or country, holding its local legislation in Lienthal, and each having one deputy in the Federal Assembly, where the influence of the old Canton is lost by the deputies voting different ways on all great questions.

The Appenzells were divided as far back as 1597, on the religious discussions of that period, the mountain districts clinging to the ancestral church, and the lowland hamlets with different social and industrial habits, adopting the doctrines of the reformers; and the old Swiss League bestowed on the former the name of *Appenzell outer-Rhoden* [beyond the Rhoden Alp], with the hamlet of Appenzell for its seat of government; and on the latter the name of Appenzell-inner-Rhoden [below the Rhoden] with Trogen for its capital; and as with the deputies of Old Basle, the representatives of these half cantons neutralize each other at Bern.

Unterwalden was divided centuries since by the Kernwald forest into hamlets over or beyond [*ob-wald*], and into others under or below [*nid-wald*] the wood—the former having the capital at Sarnen, and the latter at Stanz.

A similar division is likely to follow the religious and political feuds, which have for years divided the inhabitants of Canton Fribourg—these differing views springing from race and creed, language and occupation, seem to widen and deepen from year to year, and to find no controlling force below the Federal Compact, which may ultimately absorb the Cantonal organizations, leaving all local administration with the Communes—which have ever exercised no small portion of the functions of independent States. The Commune is the unit of Swiss organization, and is the source and secret of Swiss republicanism, corresponding to the New England town. It is so held by the Swiss themselves.

To the amount (5,157,756 *frs.*) paid out of the Cantonal budget, must be added 5,000,000 *frs.* expended by the several Communes on their own schools, and 287,611 *frs.* contributed by the Federal Council to the Polytechnic School at Zurich, to reach the total cost (10,445,367 *frs.*) of public instruction in Switzerland for 1870, while the cost (4,508,901 *frs.*) of the military service as paid by the Cantons in the same year, was increased by the sum of 5,486,396 *frs.* from the Federal budget, making the total expenditure for the army 9.995,297 *frs.* We add extracts from *The Switzers.*

The School in Switzerland.

In Switzerland, the primary business of the State is keeping school. A school is one of the first things present to the eyes of a Swiss child, and one of the last things present to the mind of a Swiss man. It comes to him in his cradle, and attends him to his grave. He could not cast it from him if he would; he would not cast it from him if he could.

A Swiss child dreams of school as urchins in an English city dream of work. He knows it is his fate in life. He sees his brother and sister go to school; he sees them bring their lessons home; he sees them rise at dawn to learn their tasks. If he is stout of limb and clear of sight, his turn will come, and he must also troop to school.

In coming to a certain age—in some the age of six, in some of seven—his right to stay at home, to play at top, and make mud pies, will cease. He is a member of the Commune, and the Commune will not suffer him to live and die a pig. The school will sieze him, hold him fast for years, and rear him into what he is to be: a baker, goatherd, student, tinker, what not; but in any case it will not lose its grasp until he grows into a man. But then an infant Swiss dreams pleasantly of school, while urchins in our country dream unpleasantly of work. If school is fate to a Swiss child, the vision comes to him in likeness of a fairy, not a hag.

Among the many quaint old fountains in these streets of Bern—with heroes, knights, and ladies on the shafts—there is a fountain in the corn-market, with an ogre, known to Bernese little folks as kindle-fresser—children-catcher—looking up the street. This ogre has a tooth for boys and girls, and clutches them as they go by. A child is disappearing down the monster's throat; three children flutter in the monster's wallet; and a bunch of children twist and wriggle in the monster's belt. That monster will devour them one and all. Grown men dispute about the legend of this ogre in the streets of Bern. One holds him out to be a feudal lord, another as an emblem of the Church. A pastor tells me that the ogre who devours his offspring is the Revolution; and a sharp young student from the neighboring college, whispers he is only Time. But neither man nor boy in Bern imagines that this ogre represents the school. A noble lady, sweet of face and firm of purpose, with her arms about the children's necks, would be to man and boy alike the type of school.

The fairest edifice a Swiss can see when he goes out to walk, is his village school, his city school, his Cantonal school, according as he happens to reside in country or in town. A jail, a workhouse—nay, a town-hall, may nestle in some corner where a curious eye might miss it; but school, a college, an academy, is sure to be in sight, the pride of every village slope and every city square. In Zurich and Lausanne, the intellectual capitals of Switzerland—Teutonic capital and Latin capital—the noblest buildings are the public schools. If we except the Federal Hall at Bern, the Polytechnic in Zurich is the finest edifice in this country; fine alike in site, proportion, fitness, and display. "Our children," says to me a sage professor, "are so much accustomed to regard the schoolhouse as the foremost building in a city, that they fall into the drollest errors when they go abroad." He tells me, as an illustration of such errors, that some years ago he took his daughter, when a child of ten, to France; and, being at Versailles, he heard her clap her hands, and cry with glee, "Look here, papa! here is the schoolhouse! It was the garden front of that huge pile.

It is the same—or very near the same—when you are out of town. You walk into some deep and sombre gorge, with jagged heights and foaming torrents, where the pines can hardly cling, a châlet here and there, high up, on what appears an inaccessible ledge of rock, and near you not a sound, except the crash of falling trees, just breaking the oppressive monotone of rushing floods. "No school in such a gorge," you haply say, when lo! a square white building rises in your front. In England, such a thing would be a shooting-box; and here it is a village school. In less secluded nooks, these buildings are on a larger scale. Take that of Sarnen. Smiling on the bright, green water, stands the finest edifice in the Canton, and of course it is a public school. Wander round St. Gallen—that St. Gallen which was once a seat of Benedictine learning, and is now the seat of a new trade in lace. One side of the fine public park is occupied by the Cantonal school—a noble edifice even in this land of noble schools. Even at Einsiedeln, the great basilica is fronted by a handsome Communal school.

The larger number of these schools belong to the Commune; for in every hamlet where there may be twenty boys and girls, the mayor and council must provide a school and hire a master. Next to the Communal schools in number, stand the burgher schools, which are supported by the State. The Canton is the State. As yet there is but one Federal school in Switzerland, the Polytechnic in Zurich, which has now become, for all the world, a model school of practical life. A great desire is felt in Zurich, Bern, Geneva, and Lausanne to found a Federal university of the highest class—to challenge Bonn and Heidelberg, if not Berlin. The Federal Constitution gives the power to found it; but as yet the project has been chilled by local jealousies, the fruit of those diversities of race, of creed, of speech, which makes us wonder that a Switzerland exists at all. But several of the Cantons have their universities on a smaller scale, and with their faculties more or less complete. Basil has a university. Bern has a university. Zurich, Neufchatel, Geneva, have their own universities. Vaud, Luzern, St. Gallen, and Ticino, each of these Cantons has a separate university. No people in the world can boast of so many seats of learning in proportion to their number as the Switzers can.

Democracy at School.

Attention to his school is not a fixed and formal business to a Switzer, as it might be to a Briton and a Frank, but an unceasing and engrossing duty from his cradle to his grave. The school is, with a Switzer, always as a child and as a man. No sooner has he ceased to be a pupil, than he starts into a principal. The village schools are governed by the villagers; and as a member of his village, be he preacher, woodman, goatherd, innkeeper, he must share in managing these public schools. He has to build them, to conduct them, and to keep them up. He has to choose the teacher and director, and to pay a portion of their stipends from his private purse. In time, he is a parent, with his little ones to tend and train. Then opens up a new relation to his village schools. He is a visitor, on private more than public grounds. Each parent has a right to visit and inspect the school, to see the teacher, and consult the records of his child. Good teachers welcome these parental visits; for a parley with the father helps the teacher with his child. The circle of his duty is complete, and so a Switzer never can forget his school, and what concerns his school.

School politics are public politics. With the Church and chapel they make the popular politics; but in a Switzeric mind, there is an earlier stage of thought than either Church or chapel reaches, and that earlier stage is the school.

In many Cantons there is some assertion in the fundamental law, that the true end of public instruction is to combine democracy with religion; that every boy attending at a public school may grow up into a good citizen and a good Christian. In the law of Zurich it is said: "The people's schools shall train the children of all classes, on a plan agreed upon, to be intelligent men, useful citizens, and moral and religious beings." In the law of Luzern it is laid down that "The school affords to every boy and girl, capable of education, the means of developing their mental and physical faculties, of training them for life in the family, in the community, in the church, and in the state; of putting them in the way to gain their future bread." In Vaud, the law declares that "Teaching in the public schools shall be in accordance with the principles of Christianity and democracy." In the law of Thurgau, it is stated that "The general aim of a primary school shall be to call out the power and talents of the children, so as to give them the knowledge and capacity of citizen-life, and to train them to be moral and religious men and women." Almost every Canton puts a clear announcement of this principle in front—the business of a public teacher is to make his boys good republicans and good Christians.

But the rule thus stated in the form of law is subject to revision year by year. The Jesuits and their party put religion first; and if they had their way, would make it first and last. The liberals bring democracy to the front; and some among them, if they had their way, would make it all in all. With us elections mostly turn on trade, alliances, and policy; in Switzerland, they mostly turn on school affairs; and hence the fundamental laws are in a stage of ebb and flow, as the conservative or democratic party gain the upper hand.

In Zurich there was recently a question in debate which set the city in a blaze. A new girls' school was wanted: every one allowed it, though a stranger might have fancied there were schools enough. The only question was in which locality the citizens should build that school. Two parties came into the front—a clerical party and a liberal party; those who put religion first, and those who put democracy first. "Let us build this school for females near the minister," said the clerical party, "for the female mind is more susceptible than the male; and if we keep the women we shall always have the men." The radical party met them with a counter-cry: "No more connection of the church and school; the clergy have no business in the class-room; let us build on neutral ground—beyond the ancient walls, among the vineyards, in the sunshine." Public policy was with the radicals. No ground was vacant near the minister, save the public square, and open places are so rare in Zurich that a project for invading one of them with stone and mortar, meets with public opposition, like a project with ourselves for trenching on a public park. The war of words grew hot; elections turned upon it; till the clerical party got the sober people, known as pères de famille, on their side. These fathers said their girls should grow beneath the shadow of the minister; it was better for them; it was more respectable; it was their fate. And so the school was built on the ancient cloisters, round the graves of venerable monks. A slice of public ground was added from the public square.

In Bern a new girls' school is wanted. The site must be a fine one; yea, the very best in Bern. But sites are difficult to find in this old city, where the narrow ridge of ground is occupied from gate to bridge with ancient houses. There are left the public gardens, called the Lesser Ramparts, where the bands perform, the citizens walk, the children play, and strangers watch the sun set on the Bernese Alps. Can any part of this delicious garden be surrendered? Yes; for one great purpose, and that purpose only—for a school. The site is given; but when the plans are drawn, it is discovered that some lime trees of enormous size and matchless beauty—trees which scent the air and cool the paths—must be destroyed. A second public pang,—and they are gone. No pride and glory of the town must stand between a Switzer and his school.

In Lausanne you find the natives talking much, and wisely, of an inter-cantonal movement in support of what is held in certain towns to be, "the just influence" of the French-speaking section of the League. That section is much weaker than the German-speaking section: but in days gone by it held a share of power beyond the value of its numbers, on account of its superior learning, energy, and dash. But now the tables have been turned, for German science has beaten French science, just as German arms have subdued French arms. Lausanne is not the literary capital; that supremacy has gone to Zurich. Geneva is no longer the political centre; that supremacy has gone to Bern. Fact and fear have roused the Gallic Cantons into crusade for the preservation of their rights. Professor Eugène Rambert lives in Zurich, where he holds the chair of Literature. Aware of what is going on, he sees that "La Suisse Romande" is losing ground. He calls his countrymen to arms. A party meet in the Hôtel de Ville, Lausanne—the men of Neufchatel, Geneva,

nis—when the state of things is carefully explained, and a pro-
found a League of French-speaking Cantons to defend them-
the ever-increasing German force. But how are they to hold
By artifice, corruption, violence? Not a dream of such things
ninds. The meeting sees and says it is a question of the public
ench education is below the mark:—it ought to be improved; and
Intercantonale proposes to revise and widen the superior education
French-speaking cities of Lausanne, Geneva, and Neufchatel. But
means, says Rambert, of a French University in Celtic Switzerland.
Rambert is a native of Lausanne, and he proposes to erect this Fed-
ersity in Lausanne. But here creeps in once more the sign of race.
f urging that the three French-speaking cities should subscribe the
nd begin the work, these Celtic Switzers ask their common country—
ain Teutonic—to provide the means. The League, they say, is rich;
ton poor. The Communes are already taxed beyond their strength;
tons can not bear fresh burthens; let a generous country pay.

School Festival and Holiday.

band, a line of flags, much patter of small feet, with now and then a
of fervid song; some fifteen hundred girls in white; a troop of magis-
s and councilors, pastors, teachers, foreign consuls: then a second band,
firemen in their casques, and landwehr in their uniforms: some fifteen
dred boys in line of march; soft babble of young voices, in the intervals
drums and trumpets.
Scene—The English Garden at Geneva. Time—the afternoon of Tuesday,
ne the twenty-seventh. Group—the pupils of the primary schools. Occa-
on—the completion of the half-year's school work. Prizes have been given
the deserving scholars. Lists of those most worthy of such honors have
een read aloud. The magistrates of the republic have addressed the mall in
cheery and exciting words. It is a great day in their lives. They are the
heroes of one happy hour; and all their faces glow with inner fire. A word is
given—the bugles sound—the lines begin to move; and soon the English Gar-
den is behind us.

For the last three days the skies have opened all their gates; this morning brought a pause in the great roar of rain, and as the heads of columns quit the ground a gleam of sunshine shoots to right and left, and soon the city and the lake are bathed in golden light. The Canton is agog with joy. All men make way for the procession. Ha! the merry ones! Good children! Soldiers of the Lord! are some of many greetings, as the boys and girls troop forward, pass the quays, and winding by the Molard, up the Rue Corraterie, reach the Electoral palace, where the magistrates receive them, and regale them. After honest fare and kindly speech, the children march to the theatre, where conjurors and showmen entertain them; then to the Plainpalais, where all the city goes to meet them; and a happy day is ended with a wonderful discharge of fireworks, rockets, wheels, and detonating stars. Much glory to the boys and girls; but glory earned by weeks of earnest work.

The festivals and holidays of a Switzer are connected with his life at school. Each change is made the pretext for a feast. On going to school there is a feast; on leaving school there is a feast: at every stage of his advance there is a feast. There is vacation feast, assembling feast; when a new teacher comes there is a feast, and when a teacher leaves there is a feast. The school is made to him, by public and by private acts, a centre of all happy thoughts and times. It shares the joys of home and the rewards of Church. At school, a Swiss boy finds his mates, with whom he learns to sing and play, to drill and shoot. The teacher is to him a father. With this teacher he will grow into a man, assisted on his way with care and love, unmixed with either foolish fondness or paternal pride. With him, and with his mates, the lad will take his country strolls, collecting rocks and plants; will push his boat across the lake, and dive into the secrets of the ancient water-folk; will pass by train into some neighboring Commune, where the arts are other than he sees at home. All bright and pleasant things are grouped about him; and in after-time, when farm and counter occupy his cares, these school days will seem to him the merriest of his life.

The school, the pupil, and the teacher, are forever in the public eye. The scholars promenade the streets with music, flags, and songs. All men make room for them, salute them, glory in them, as the highest product of their State.

Gymnastic and Military Drill.

The elements of drill begin the very first week of a scholar's course. A teacher sets his pupils in a row; he makes them stand erect; he moves their limbs together; has them bend, recover, stretch the hands, march, leap and jump. All kinds of games are practiced in the play-ground. Every game that tends to open and expand the chest, to nerve the limbs, and give a carriage to the frame, is studied, and if need be, introduced. From six to eight a lad is exercised in simple motions of the body; at the age of nine he learns to hold a pole, to run with ropes, and swing on bars. From ten to thirteen, harder things, made easy by the previous training, are commenced. The lines are formed like regular squads; the exercise is but another name for drill. In walking, running, hopping, every one obeys the word; whirls, changes front, and halts, as he is told. All exercise is orderly and rhythmical. Much care is taken with the halting, turning round, and facing to the right and left. The squads are put through many exercises in bending, twisting, reaching, and recovering at ease. Long jumps, and high jumps, every sort of sport on foot, with hanging by the hands and feet from rings, with climbing poles and ropes, with bounding from a spring-board, and a hundred games that strengthen, temper, and adjust the frames. On leaving one of these rural schools, at fifteen years of age, a lad is fit for any part that he is likely to obtain; is fit to be a waiter, farmer, boatman, fruiterer, and so on; and is also fit to exercise his public rights—to hold his rifle, and cast his vote. For such a lad can read and write, can sing and shoot; he knows the constitution of his country, and can follow with a free intelligence the politics of his city and his State.

The only folk you see in these free Cantons clothed in uniforms, are students coming from the public schools, and yet this League of free republics is not unprepared for war. You find no soldiers in the street, because these Cantons have no separate military class; but every man you see, in shop or field, would start into a soldier if his bugle called; a soldier, armed, equipped, and ready for the march. The groom who feeds your horse may be a corporal; the doctor who prepares your draught may be a captain of the line. No power is wasted by these Cantons. Every man is trained to face his duties, when the trumpet sounds.

Come with me to the Cantonal drill-ground; that of Zurich, for example. In a broad, green meadow, called the Wollis Hofen, lying at the foot of Uetliberg, the boys of Zurich drill and shoot on summer days. The meadow is an ancient river-bed, now soft and grassy, with a ridge of ground about it, shutting off the lake; four miles in distance from the Polytechnic and the Cantonal schools. Hither march the boys on certain days with fife and drum, with glittering steel and mounted guns; the linesmen carrying rifles, the artillery wearing swords. Some companies of Cantonal troops are in advance; going out to practice at the range. A group of teachers and professors—men whose names are known to Europe—Kinkel, Vögelin, and Behn-Eschenburg—are with the boys, and will be followed, later in the day, by groups of parents, sisters, and it may be sweethearts, ready with their cheering cries and waving hands, to mark each movement in the field. Arrived at Wollis Hofen, the procession halts, a line is formed, the names are called, the arms and uniforms are noted, and the several companies told off to drill and shoot. A little drill suffices for the younger fry; who march, and wheel, and skirmish, and are then dismissed for play. But play itself is part of drill. These youngsters race and leap, and throw the ball, and try to catch their comrades in a coil of rope. Two swords are stuck into the ground as barriers, and the urchins chase each other around these shining points. More work is given to boys of riper age; the full battalion drill, and firing, company by company, at a range of butts. A volunteer myself, I note the doings of these lads, and find in them a good deal to approve; though much of it is better for the field than for parade. The wheeling is a little loose; the line is sometimes bent; and here and there a lad falls out of step. But these are faults of that loose system which the Zurichers have borrowed from the French. The skirmishing is quick and steady; the recovery into time alert. Still better is the firing at a mark. I should not like to be a Zouave, clambering up a rock, with one of those young marksmen of fifteen behind the ledge.

A park of guns is on the ground. The Cantonal schoolboys form the line; the Polytechnic students serve the guns. Except that many of the lads wear glasses, they have very much the look of youths who will be soldiers by and by. A canteen is erected on the meadow, but no sign of drink being close at hand is seen. A thin red wine is sold to such as want it; but the boys prefer their grapes and apples—fruit of which they seem to have abundant crops. One corner of the meadow is enlivened by a band, round which the ladies and performers sit; and at the butts a rifle-match is on between two Cantonal shooting clubs. The boys observe this shooting with intense delight; a cry of rapture greets each score; and men of every age, from eight to eighty, and of every rank, from laborers to professors—stand together on this Zurich drill-ground, foot to foot, and wrist to wrist, as it were, in the freemasonry of arms.

Some cheap and homely prizes—canes, and drinking mugs, and albums—are distributed by a city magistrate, to such as have done well. The band strikes up the Rhine Watch, and the youngsters shout hurrah, and toss their caps in the sky. A great professor speaks a few warm words; and the business of the day is done. A bugle calls, and the homeward march begins. Half Zurich comes to greet us on the quays and in the streets, and having spent ten hours in the open field, we all feel ready for a frugal supper and a dreamless sleep.

In every Canton of the League you find such schools of arms as that of Wollis Hofen; drill and shooting grounds belonging to the State, and reckoned as the necessary adjuncts of a public school. For with every Switzer drill begins as soon as he can stand erect and poise a stick. In many Cantons drill begins at six; in others it begins at seven; of course in very simple sort, as moving at word, as beating time, as carrying satchel on the back. At ten the work becomes more serious; there is wheeling, skirmishing, recovering, forming squares, deploying into line, and marching, both in columns and in files. As they grow up, the pupils drill with arms; and in the fullness of their teens they practice firing at a mark. A field-day in the drill-ground is regarded by the scholars as a play-day. Every one is eager for a prize. The thing itself is nothing, for the glory is enough. Some magistrate of the republic gives away the prize; the Cantonal Journal registers the fact; a hundred friends and neighbors praise the happy shot. To be a marksman in the village is to bear away the palm. Thus every male you meet above the age of seventeen is a soldier, ready in the hour to take the field.

It was in view of this national armament that General Dufour wrote to the French Minister of War, in 1870 in view of the complication of military preparation, and the desire not to be embroiled in the adventures of either side: "We have an army more than 100,000 strong, well drilled and armed, supported by a landwehr, numbering very nearly a hundred thousand more. Our guns are ready for the field; our rifles are as good as we can find. We have our camp for tactics, and our schools for exercise. We have among us many military circles; but beyond all these defenses, we can count on the national spirit in the heart of every citizen—a resolution to protect our independence and neutrality, let the storm break on us from whatever side it may."

LATER SCHOOL REFORMERS.

Johannes Sieber.

JOHANNES SIEBER was the master of a village school at Uster, on the Griefen Lake, some dozen miles from Zurich. Uster was a feudal hamlet, now it is a weaving station. On the knoll above the weavers' houses rests the remnants of a castle, which are turned to use as court-house, jail, and inn. A tower, on which the weavers drink their beer, commands the lake below, and in the distance sweeps the peaks and crests of Schwyz. Near by a group of factories frets the sky and smoking chimneys overtop both feudal tower and Gothic spire. In Uster, Sieber was employed in teaching rustics how to read and sing. Like nearly all his class he was a politician of advancing views. His school was in the shadow of that ancient pile; a living proof that victory is with the popular cause. He was no learned pundit; he had taken no degree; but he was full of speech and pluck; and, more than all, he had the sense to see that this great struggle of the popular and conservative parties turned upon the public schools.

"You see the fruit but not the root," my host explains to me, as we were driving past. "These youngsters streaming from the Cantonal school steps, are like the vines on yonder wall; they flourish in our soil, but draw their being from a distant source. We Switzers are not poets and inventors; we are homely folk; but then we know a good thing when we see it, and are quick to try if it will suit us. I am not an old man yet; but in my youth you might have passed from Basel to Ticino and not have seen a decent public school."

"You have not let the grass grow under your feet, then?"

"Not only is our scheme of State instruction new, it is Germanic, and not Latin in its origin, its spirit, and its plan. We date our University in Zurich from an early time; but in that early time the church was always in a teacher's mind. A teacher seldom thought of civil life. He was a priest; he wished to make his pupils priests. His school was a part of some religious house; some priory, some abbey, where the ruler was in holy orders. His instruction was devoted to a single purpose. Priests required some letters, and they got some. Girls required no letters, and they got none. Females had no chance of learning how to read and write, except through private means and at enormous cost. A man who wished his girls to learn, was forced to hire a priest and lodge him in his house!"

"The change came on, you think, with the revolt from Rome?"

"With Martin Luther. Rome was pagan in her spirit. She would never give her system of instruction to all classes. Luther was our source of civic life. He was the first to claim that public teaching should extend to all; to rich and poor, to male and female, and to bond and free. Yes, Luther is the father of democracy. He, more than any Switzer, shaped our politics and framed our laws."

Thomas Scherr.

Who is Thomas Scherr, some reader asks, that he should stand in line with Luther? Scherr is not a man of name, and yet his work was good and he performed it well. In Zurich he is dearly loved. As Luther gave to public teaching a popular spirit, Scherr endowed it with a popular form. Scherr is the actual founder of the system now prevailing in Canton Zurich; and in no slight measure is the author of her wealth, intelligence, and fame. She loves him all the more that she was cruel to him while he lived, and torn with anguish for him when he died. Born in the small village of Hohenrechberg, in the Kingdom of Wurtemberg, Thomas Scherr received his training in the public school, and feeling a vocation for the teacher's office, studied pedagogy as an art, and got appointed to a desk. His fame soon spread abroad; for he was not a teacher only, but a special teacher, with ideas of his own. Promoted to the mastership of a deaf and dumb institution, he arrested wide attention by his plan for teaching mutes how to speak. At twenty-four he came to Zurich, where the state of Education was below the mark. Here he got appointed to the Blind School, which he thoroughly reformed, and with such full approval of the city that the Government increased his school by adding to it a department for the deaf and dumb, in order that his theories of teaching might be fully tried. Before that day, the time was 1825 to 1836, all teachers of the deaf and dumb had been content with the opinion of De l' Epée and the Abbé Sicard, that the only way to teach a mute is by the *hand*. Watson in England, Heinicke in Germany, Clerc in the United States, were followers of that method. Scherr had other thoughts. No man, he found, is naturally mute. A child is dumb because he is first deaf and does not hear articulate sounds. But may he not be taught articulation through the eye? Scherr thought he might. He dropped the finger-alphabet and tried to teach his pupils to articulate in letters, syllables and words. Articulate sounds are formed by breathing through the lips and teeth, along the palate and the tongue, and all the movements of these organs, while the sounds are issuing may be *seen*. A little care and patience, and the pupil imitates these movements, and acquires the gift of speech. A double end is gained; for while he learns the art of breathing words, he also learns the art of reading them. A class of mutes who can distinguish what the master says, can also train the accents on each other's lips, by sight. The power of interchanging thought, if not so rapid as in men with all their senses, is complete. A great success attended Scherr. Some pupils learned to speak with ease, and many learned to speak a bit. In six years he had made his ground so sure that, when the Canton wished to frame a better code, he was elected to the Education Council, and intrusted by that Council with the task of drawing up a general law. Public codes are common now, for every Canton in the League has framed a public code; but in the days of Scherr such things were new and strange, and the Federal party, urged by Dr. Bluntschli (one of the aristocrats, whose ancestors had governed Zurich long before she joined the Forest Cantons), led the innovator an uneasy life.

Scherr wished this business of education to be made a business of the State. He held that every one should go to school, that every village should provide a school, that every citizen should take his share in managing a school, and that the parents should be pressed to visit and inspect the school. He wished to see the school a home, and hoped to call the family spirit to his help. To him no subject was so serious as the school. He meant the world to see things as he saw them; and he hoped by means of public festivals to bring the highest interests of the Canton on the public schools. One part of his reform the Canton put in force without delay. The want of Zurich was the want of Europe—teachers who were fit to teach. Except in Germany, no such artists in tuition could be found: and Scherr proposed to found a training college near the city, where selected youths of either sex might be instructed in this difficult and important art.

Four miles from Zurich city, on a slip of vineyard mirrored in the waters, stands the pretty thorp of Küsnacht. In this pretty thorp his training college was erected. Three years later, Küsnacht was a place of name and fame, and men from every part of Europe flocked to see the master at his work.* An impetus was given to teaching in all countries, more than all in the Teutonic Cantons of the League. As teacher, Scherr was very great. His lessons on the forms of speech, and on the graces of expression, were remarkable for neatness, brilliancy, and point. With boys and girls he had a vast success; his manner was convincing, and his power of illustration and comparison was endless. Scherr was happy in his work, and all, except the Federal party, who were his open enemies of public education, were extremely proud of Scherr. The wider grew his fame the sharper grew his pain. A cry rose up against him that he wished to ruin trade by driving every boy and girl to school. A hundred manufacturers declared that they would have to close their shops. They could not carry on their works. Their industry would perish, and their capital be lost. If Scherr were suffered to go on they must remove their mills to Cantons where such fools were not allowed to tamper with the laws of trade. They might be driven away to France.

Scherr answered that the city was extending on all sides; five hundred new houses were being built; the streets were cleaner, quieter than of yore; the port was filled with an increasing fleet of boats; and thousands of foreign artists were coming to the town for work. New public buildings were commenced; the ancient walls were overthrown; new terraces and gardens rose on either side the lake; new book-shops opened: singing clubs were formed; a theatre was built; some fine hotels were added to the town; the Dom was put into repair; a higher plane was reached. The Feudal party were convicted, not convinced; and when the next reflux of passion brought them into power they wreaked their hatred on the man, although they were not strong enough to stay his work. Scherr died in exile from the Canton he had made his own.

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* Prof Bache made the Normal School at Küsnacht known to American teachers, in his Report on Education in Europe in 1838, and an account of his visit was published in Barnard's Normal Schools in 1846, and in the American Journal of Education in 1858.

Johannes Sieber seized the golden chance. A master of a school like Scherr, he found the liberal sentiment was with his class. The name and cause of Scherr were dear to all; and Sieber wrote that name, that cause, upon his flag. The Liberals took him for their leader, and the fight being won, they carried him from his desk as Uster into Government House in Zurich, where he holds, under the pure democracy, the two chief offices of this Canton—President of the Council, and Director of the Education Board.

Illiteracy Unknown.

Director Max Wirth, of Bern, assures me that no boy, no girl, exists in this Confederation—save an idiot here and there—who can not read and write. So far as one can judge, Herr Wirth is right, as to the outer side of things. All Switzers seem to be—and to have been—at school. There must be some exceptions to this happy rule; exceptions in remote and barren wilds, where nature gives her offspring an embrace like that of wolves and bears. In cities there are no illiterate classes like the savages of London, Paris, and New York; but in such chasms as break the snowy alps of Schwyz and Uri, where the pine and larch can hardly grasp the rocks, there may be found some unkempt, untaught boors. Not many, perhaps—but some; enough to show that men are men, and that the sternest rules may fail where nature works against them. More than once, in crossing by the passes of Graubünden, through the Fore Rhine country, I have come on village schools shut up; and on inquiring at the nearest house of call, have learned that they are closed for more than six months out of twelve. In summer time a lad is on the mountains tending goats; in winter time his house is buried under snow. The school is three miles from his door; how can he be expected to attend it every day? The law may tell him he must go to school. The law sounds well enough in Chur; but who shall fetch him from the Alpine tops, and who unearth him from the falling snow? In these secluded mountain troughs the life is hard, the priest is easy, and the village mayor is kind. A peasant mayor can feel for peasant woes; and though he reads the law, and talks of putting it in force from day to day, the months slip by, and Johann is not seen at school. But these exceptions hardly tell against the mass. In looking broadly for results, these Alpine savages may well be dropped. "We reckon all such waifs and strays as idiots," Wirth remarks. They need not mar the picture, though they shade it with a little cloud.

In general terms, all Switzers, male and female, may be said to read and write, to keep accounts, to sing, to shoot, and take a personal and intelligent part in what concerns the public weal.

Compared with the United States.

How much unlike the state of things in England, who shall need to say? At home, we English stand outside the lists; and even in the United States our kinsmen show to disadvantage. Take the census of 1860 in the United States. The figures will astound some persons who have long been saying that if education is neglected on the parent soil, it flourishes abundantly among our sons. How stands the record; In America the number of illiterate men and women, white of skin, and over twenty-one years old, is upwards of a million. The number of illiterate persons is increasing, not diminishing. In 1840 the white-skins over twenty-one who could not read and write were 549,850; in 1850 these illiterates had increased to 962,898; in 1860 they had swelled to 1,126,575. If you were to throw in other classes—red-skins, black-skins, yellow-skins—you would increase this number very much. The yellow-skins and red-skins were not counted in this census, but the black-skins were; and from this color only the Department of Education add 1,?50,536 adults to the mass of ignorant whites. In all, the States report that they are burthened with a population of 2,872,111 whites and blacks who neither read nor write.

Thus the number of ignorant adults in America—of men who read no books, no laws, no constitutions, no reports, yet exercise political power—is greater than the whole population of Switzerland. It may be fancied that these ignorant whites are strangers; this is partly true, though not to any large extent. The mass of those who neither read nor write are natives of the soil. We cite these figures from the census:—

Illiterate white adults, 1860:

Native-born,	871,418
Foreign-born,	346,893

But some may dream that this neglect of education in America is partial only; in the ignorant South, in the chaotic West. The tables yield no facts that would support this view. What strikes one most in going through these tables is the uniformity of ignorance in the leading States. Virginia—home of chivalry—is the most ignorant State of all; but North Carolina and Tennessee are not far behind. Read this tale of grown-up white men and women who (in 1860) could neither read nor write:—

In the State of	Virginia,	72,000	souls.
"	North Carolina,	68,000	"
"	Tennessee,	67,000	"
"	Kentucky,	63,000	"
"	Indiana,	54,000	"
"	Ohio,	41,000	"
"	Illinois,	38,000	"
"	Pennsylvania,	36,000	"
"	New York,	20,000	"

Horace Mann asserts that these returns are far below the facts. He takes some pains to show that many persons are returned as able to read and write who are not able; and he adds no less than forty in the hundred to these numbers, in correction of that false return. He nearly doubles the enormous totals of these ignorant whites.

From this pleasing picture of Swiss schools and popular education in the nineteenth century, as compared with the most advanced nations in the same period, it will be instructive to get a glimpse of school life in the fifteenth century, not only in Switzerland, but in the heart of Europe, as we find it recorded at the time, in the autobiography of Thomas Platter, a pupil and teacher of the Schools of Canton Valais. As a measure of the progress, not only of popular education, but of the higher culture of that, and even of a much later period, we introduce from Raumer a chapter on the Universities in the sixteenth century, and a frightful picture of the demoralization which characterized those seats of learning, down even to the beginning of the present century. We shall thus realize more clearly the exceeding low point from which the progressives of the eighteenth century began their work, and the debt of gratitude which is due to such educators as Ratich, Comenius, Franké, Pestalozzi, and Fellenberg.

IV. SUPERIOR AND PROFESSIONAL INSTRUCTION.

The statistics of institutions and pupils in the departments of Superior and Professional Instruction will be found on the next page, and the historical development and present organization of these departments of the system will be given in another volume.

V. BUDGET OF PUBLIC INSTRUCTION FOR 1870.

The principal items of State appropriations for public schools and institutions for the year 1869, were given under the head of central administration, to which these expenditures belong. We give below a few particulars which throw light on the details of the system.

I. The State expenditures for Primary Instruction was 2,651,254 *liras*, which included: (*a.*) 1,500,000 in subsidies to the local communities; (*b.*) 608,500 for normal schools; (*c.*) 124,964 for girls' schools; (*d.*) 93,914 for deaf-mutes' schools. The local taxes for primary schools realized 1,500,000 *liras*.

II. The sum appropriated to Secondary Instruction was 4,092,878 *liras*, viz.: (*a.*) Salaries of professors, &c., in State Lyceums, 1,185,593; (*b.*) in Royal Gymnasiums, 867,000; (*c.*) in State Technical Schools, 579,668; (*d.*) for Examinations, 110,000; (*e.*) for special aid and subsidies, 93,382; (*f.*) in National boarding colleges, 316,795. These sums are exclusive of 578,920 received from endowments in the Neapolitan provinces, and 1,849,221 from similar sources in other provinces, besides an equal amount from local communities, making the aggregate expenditure for secondary instruction about 9,000,000 *liras*, exclusive of private tuition.

III. Superior Instruction, including 20 Universities and several Higher Scientific Institutes, absorbed 5,469,386 *liras*. Among the items are, (*a.*) for salaries of rectors, professors, heads of laboratories, cabinets, &c., 3,530,405; (*b.*) scholarships and prizes 162,653; (*c.*) for museums, cabinets, observatories, libraries, classics, 1,200,000; (*d.*) for Superior Institute at Florence, 315,820; school of engineers at Turin, 100,750; *do.* at Naples, 76,850; *do.* at Milan, 90,410; Scientific Academy at Milan, 54,000; Superior Normal school at Pisa, 42,000; Medical College at Naples, 27,540; Provisional University schools, 23,415; three Veterinary schools, at Milan, Turin, and Naples, 226,315.

IV. (*a.*) Academies, Museums, &c., of Science and Art, receive 550,000 *liras*; in this class are the Royal Academy at Turin, the Crusca, at Florence, Royal Institutes at Milan and Venice, 162,342; (*b.*) Historical studies of Italy, 27,700; (*c.*) Museum at Naples, including excavations in old cities and Pompeii, 269,324; (*d.*) Observatories at Milan and Naples, 34,000; (*e.*) for Academies of the Fine Arts, 1,413,568 *liras*, viz.: Royal Academies at Turin, Florence, Pisa, Modena, Bologna, Parma, Carrara, &c.; Royal Foundry in bronze at Florence; Conservatories of Music at Milan, Parma, Florence, Naples, Palermo, &c.; Royal Commission of the Fine Arts.

V. The public libraries at Naples, Florence, and Milan, receive 120,000, in addition to the income of special endowments; other libraries containing 5,059,895 volumes, receive special appropriations. *Total*, 521,528 *liras*.

VI. The Central and Provincial administration absorbed 816,965 *liras*; (*a.*) 372,000 *liras* in the Central; 253,500 in department of the Minister; 28,500 by the Superior Council; 90,000 for Provincial Special Inspections. The Provincial Administration expended 444,465 *liras*.

VII. Total expenditures in 1869 were about 16,000,000 *liras*, or 1.56 of entire State expenses.

VI. STATISTICS OF INSTITUTIONS.

The statistics of public instruction in a kingdom made up of so many provinces, till recently accustomed to entirely different systems, are for the present necessarily imperfect.

1. *Primary Instruction.* In 1866 there were 24,682 public primary schools, viz: 14,240 for boys, and 9,737 for girls; whilst the number of private primary schools was 5,435, viz: 2,726 for boys, and 2,341 for girls; making a total of 31,117 primary schools, viz: 16,966 for boys, and 12,078 for girls. Besides these, there were (in 1863) 2,803 evening and Sunday schools.

The total number of scholars in the public schools was 1,102,721, viz: 630,230 boys, and 472,491 girls; and in the private schools, 115,149, viz: 56,068 boys, and 59,081 girls. Total, 1,217,870 scholars: 686,348 boys, and 531,522 girls.

The number of teachers in the public schools was 26,019, viz: 15,478 male teachers, and 10,541 female teachers; whilst in the private schools there were 6,371 teachers, viz: 3,047 male teachers, and 3,324 female teachers; making a total of 32,391 teachers, viz: 18,526 male teachers, and 13,865 female teachers.

Thus the total numbers are as follows (of all the primary schools with the exception of evening and Sunday schools): 31,117 schools, 32,391 teachers, and 1,217,870 pupils. For the education of primary teachers there are 91 seminaries and model schools, and 44 conferences or institutes.

2. *Secondary Instruction.* There exist the following kinds: lyceums (*lycei*), and gymnasia (*ginnasi*), for the different grades of classical instruction; and the technical schools, technical institutes, and superior technical institutes, for scientific and practical instruction.

In 1868–1869 there were 78 royal lyceums, with 3,172 scholars; 14 assimilated lyceums, with 326 scholars; and 54 private lyceums, with 1,380 scholars; making a total of 146 lyceums, with 4,878 scholars. In the same year there were 103 royal gymnasia, with 8,223 scholars; 40 assimilated gymnasia, with 2,524 scholars; and 323 free gymnasia, with 9,783 scholars; making a total of 466 gymnasia, with 20,550 scholars. *Total,* 612 secondary classical schools, with 25,408 pupils.

There were 55 royal technical schools, with 5,868 scholars; 72 assimilated technical schools, with 4,594 scholars; and 138 free technical schools, with 6,495 scholars; making a total of 265 technical schools, with 16,955 scholars. There are 84 technical institutes, with 880 pupils; and 3 superior special institutes (at Milan, Turin, Naples), with 555 pupils. *Total*, 352 institutions, with 17,392 pupils. Total number of secondary technical schools was, in 1868, 964, with 42,800 scholars.

3. *Superior Instruction*:—20 universities, with 2,096 students of law, 1,320 of medicine, 987 of science, 71 of philosophy and literature, 9 of theology. With most of these universities there are special courses, some with one, others with two, three, or more, in all 47 courses, with 82 students in the notary course. 530 in the pharmaceutical, 16 in the surgical, 19 in the course of midwifery, 84 in the veterinary course. The total number of students in 1867–68 was 5,124 approvati, and 1,308 licentiates (only in the courses).

4. *Special and Professional Schools.* Of these there are:
Royal Institute of superior practical studies, at Florence, 138 students.
Academy of science and literature, at Milan, 27 students.
Royal superior technical institute, at Milan, 254 students.
School of medicine and veterinary surgery, at Milan, 58 students.
School of applied engineering, at Turin, 190 students.
School of medicine and veterinary surgery, at Turin, 98 students.
Royal superior normal school, at Pisa, 28 students.
Royal school of applied engineering, at Naples, 111 students.
Royal college of medicine and surgery, at Naples, 75 students.
School of medicine and veterinary surgery, at Naples, 71 students.
20 Nautical schools.
2 Mining schools, at Aosta and Agordo, each with course of three years.
1 School of artillery and military engineering, at Genoa.
1 Military academy, at Turin.
1 School of infantry, at Parma.
1 School of cavalry, at Modena.
2 Marine academies, at Genoa and Naples.
6 Academies of music of the highest grade.
29 Schools of art.

SUMMARIES AND STATISTICS FOR 1868–9.

From official documents addressed to the king, printed in Athens in 1869, for which we are indebted to Mr. Rangabe, the Minister Resident at Washington, we gather the following summaries and statistics:

The kingdom of Greece, including the Ionian Islands annexed in 1864,* had an area of 19,941 square miles, with a population of 1,325,479.

The establishment, extension and improvement of schools has been a cardinal principle with the government and the people since the organization of the kingdom, and considering the fact that at the close of the war of independance only nine towns had escaped even partial destruction, and the work of building houses and developing homesteads has had to go on with constructing roads and public buildings, the progress of education has been rapid, and the following results in institutions, teachers and pupils are highly creditable:

In the following summary the statistics are partly for 1866 and partly for 1868–9.

I. The University at Athens has an aggregate of 1,205 students and 53 professors, distributed as follows:—

	Professors and Teachers.	Students.
Theology, ...	5	29
Law and Public Economy, ...	9	673
Medicine and Pharmacy, ...	16	340
Philosophy, ...	21	151

Each faculty elects its own rector and a representative, who with the president appointed by the king, constitute the academic council. The University is represented in the national legislature by a member elected by the whole body of professors. Connected with the University is a Philological and Pedagogical Seminary for the training of professors and teachers of gymnasia and special schools. The library, botanical garden, museum of natural history, the observatory, collection of coins and antiquities, chemical laboratory, hospital for practice and demonstration in medicine and pharmacy, are all on a respectable scale. The salaries of the professors are paid by the government, and incidental expenses are met by income of endowments. Instruction is free. From 1837 to September 1869, 5,245 students have frequented the university, of whom 1,877 have gone through the regular course required for the graduating diploma. The students represent every section of Greece.

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* By the treaty of Paris in 1815, the seven Ionian Islands—Corfu with a population in 1861 of 70,124, Cephalonia with 73,571, Zante with 39,693, Santa Maura with 20,797, Ithaca, with 11,940, Cerigo with 14,564, and Paxo with 5,009, a total population of 235,678, were declared a single, free and independent state under the protectorate of Great Britain, represented by a Lord High Commissioner. In 1864 these islands, after a popular vote approving the same, were transferred and made part of the kingdom of Greece. Under British protection a system of public schools was established, which at the date of the transfer embraced 100 District Schools with 6,005 pupils; two Classical High Schools with 112 pupils; one Lyceum or College with 60 students at Zante; one of a higher order at Corfu with 73 pupils and a library of 30,000 volumes, and the Agricultural College with 140 pupils.

II. The second grade of instruction is represented by 16 gymnasiums, or classical schools, with 105 professors and 2,094 students, and 129 Hellenic high schools with 6,643 pupils, under 256 teachers—an aggregate of 8,737 pupils and 361 teachers. To this grade of schools should be added 93 private schools, some of which are of a superior order, and most of them compare favorably with the public high schools and impart instruction to 5,252 pupils, more than half of whom are girls.

III. The elementary schools, viz., 877 for boys, and 134 for girls, under 1,074 teachers, educate 54,406 pupils. These 1,011 common schools are distributed through all the *nomarchies* (counties) and islands.

TABLE.—*Elementary and Secondary Public Schools in* 1868.

Nomarchies.	Gymnasia.	Head Masters and Professors.	Students.	Hellenic (Real) Schools.	Teachers.	Students.	Common Schools for Boys.	Teachers.	Pupils.	Common Schools for Girls.	Teachers.	Pupils.
Attica and Bœotia...	3	24	753	9	31	1,138	63	72	4,416	17	28	1,726
Phthiotis and Phocis,	1	7	33	10	19	373	84	87	3,087	9	9	661
Acarnania & Ætolia,	1	6	66	14	22	328	63	63	2,973	9	9	656
Eubœa,............	1	6	111	8	18	505	41	45	2,507	9	10	736
Cyclades,..........	1	6	176	18	36	875	66	69	5,029	22	25	1,383
Achaia and Elis,....	1	6	192	8	18	633	93	94	4,641	9	10	651
Argolis and Corinth,	1	6	180	10	26	792	79	88	5,427	13	15	1,435
Arcadia,...........	1	6	139	16	30	688	85	88	5,325	12	13	545
Laconia,...........	1	6	82	8	16	358	84	85	3,377	9	9	320
Messenia, ...	1	6	121	10	20	457	64	66	4,226	14	15	657
Zante, ...	1	6	73	1	3	167	31	35	563	1	1	57
Cephalonia,........	1	7	35	2	6	169	51	52	1,675	4	6	189
Corfu,.............	2	15	113	5	11	197	73	71	1,848	6	7	296
	16	105	2,094	119	256	6,643	877	917	45,094	134	157	9,312

Besides the regular elementary schools there are three orphan asylums with 158 pupils (80 girls and 70 boys).

IV. Under the head of Special Instruction may be mentioned—

Five Theological Seminaries, viz., one at Athens, recently endowed by the brothers Rizaris; one at Tripolis, one at Chalcis, one in Syra, and one at Corfu; the one at Athens is of a higher order.

Five Nautical Schools established in 1867, viz., one in Syra, one in Hydra, one in Spetses, one in Galaxidi, and one in Cephalonia. The pupils who pass a successful examination receive a diploma to serve in the merchant service.

One School of Art, and fourteen Drawing Schools.

One School of Agriculture.

One Military and Civil Polytechnic Academy.

One Teachers' Seminary with a model school attached.

V. The government appropriates liberally to the department of education, the expenditures for 1868 amounting to 1,658,446 drachmas ($300,000).

PROGRESSIVE DEVELOPMENT OF ELEMENTARY SCHOOLS.

The following statistics illustrate the further operations of the law of 1857. They can not be compared closely with those of any former year, in as much as under the law of 185 a different classification of schools prevailed. Many of the higher primary schools were ranked with the secondary schools, and the evening and adult schools were brought into a class by themselves.

TABLE I.—*General view of Elementary Schools in* 1865.

Population in 1865,		3,628,229
Primary Schools—		
Public,	2,180	
Public, of a higher grade,	385—	
Total—Public Primary,		2,465
Private, subsidized,	35	
" of a higher grade,	117—	152
" non-subsidized,	300	
" " of a higher grade,	606-	906
Total—Primary Schools of all kinds and grades,		3,623
Teachers of Primary Schools—		
Male Principals,	3,151	
" Assistants,	2,763	
" Pupil Teachers,	2,760—	
Total—Male Teachers,		8,674
Female Principals,	418	
" Assistants,	871	
" Pupil Teachers,	207—	
Total—Female Teachers,		1,496
Total—Male and Female,		10,170
Attendance—boys,	234,228	
" girls,	198,155—	
Total—Boys and Girls,		432,383
Cost—State Expenditure—		
Contributions to Communes, in florins,	109,244	
in special aid,	73,050	
Government Primary School at Maestricht,	8,381	
Instruction in Poor-houses and Reformatories,	6,663	
Instructors' Salaries,	401	
Instructors' Pensions,	64,000	
Teachers' Schools,	155,887	
Teachers' Clubs and Societies,	5,100	
Inspectors' Salaries,	25,200	
Inspectors' traveling and other expenses,	5,178	
Sub-Inspectors' salaries, &c.,	43,803	
Examination charges,	1,057—	
Total—of State Expenditures,		497,969
Cost—Communal Expenditures—		
Instructors' Salaries,	2,399,174	
School Rents,	79,276	
New Schools,	815,876	
Repairs,	235,312	
Furniture, &c.,	303,618	
Lights and Fires,	103,590	
School Commission,	16,155	
Pensions,	41,799	
Subsidies to Parish Schools,	41,223	
Teachers' Schools,	13,393	
Inter-Communual charges,	23,514	
Miscellaneous,	46,929—	
Total—of Commercial Expenditures,		4,149,867
Total Expenditure—State and Communal, in *florins*,		4,647,836

TABLE III. *Elementary Schools, Teachers, Pupils, and Expenditures*—1865.

SCHOOLS.		TEACHERS—MALE.			TEACHERS—FEMALE.			PUPILS.		
Class.	Number.	Principals.	Assistants.	Pupil Teachers.	Principals.	Assistants.	Pupil Teachers.	Boys.	Girls.	Total.
Public Primary, ...	2565	2482	1889	2049	34	139	35	193,865	149,140	343,005
Subsidized Private Primary,	152	102	82	25	40	57	10	3,252	2,714	5,966
Non-Subsidized Private, ...	906	567	792	686	344	681	173	37,111	46,301	83,412
Total, ...	3623	3151	2763	2760	418	871	207	234,228	198,155	432,383

TABLE III. *Progress of Primary Instruction from* 1858 *to* 1865.

	PUBLIC SCHOOLS.			PRIVATE SCHOOLS.			TOTAL—PUBLIC AND PRIVATE.			EXPENSE.
Year.	Schools.	Scholars.	Teachers.	Schools.	Scholars.	Teachers.	Schools.	Scholars.	Teachers.	Florins.
1858	2516	291,602	4891	1034	79,050	3120	3550	370,652	8,011	2,380,980
1859	2498	296,950	4758	1065	83,054	3140	3563	380,004	7,898	2,687,720
1860	2490	294,503	5165	1049	82,778	3231	3539	377,281	8,396	3,234,606
1861	2501	284,440	5735	1073	81.272	3293	3574	365,712	9,028	4,142,404
1862	2535	323,408	6182	1072	86,951	3461	3607	410,359	9,643	4,309,515
1863	2549	334,829	6579	1059	87,528	3576	3608	422,357	10,155	4,235,960
1864	2558	333,907	6837	1056	88,286	3528	3614	422,193	10,365	4,262,193
1865	2565	343,005	6678	1058	89,378	3552	3623	432,383	10,230	4,489,522

ICELAND.

ICELAND, a dependency on the crown of Denmark, had by the census of 1860 a population of 66,987, concentrated mainly on three districts, and in its physical, political, social and educational condition presents many points of interest. The island comprises about 40,000 square miles, of which more than one-half (26,000 miles) are closed to human occupancy and cultivation by insuperable natural difficulties. Six volcanoes have from time to time within the century, added the terrors of fire to those of perpetual snow and icebergs, and volcanic rocks and ice-fields and glaciers cover all the interior. It is only along the coast that settlements are possible, and the climate, with its excessive dampness, its extreme and variable conditions of light, heat and cold, limit the industries of the people to fishing, and gathering and converting to use a few natural productions of the soil in their own houses.

The inhabitants are of Scandinavian origin; the island having been colonized by a Norwegian in (or about) 870, and was gradually settled from the mainland by a hardy people, whose institutions were shaped in the beginning of the tenth century into a republic—a government instituted by themselves, for their own benefit, and administered by officers of their own choice. But in this, the law of the strongest prevailed, and it finally took the shape of an aristocracy, until Haco VI. of Norway, in the beginning of the 12th century brought the different chiefs and the whole island under his sway. When Norway was united to Denmark in 1830, Iceland shared its fate, but was not dissevered in the reconstructions of 1814. It still remains a dependency of the Danish crown.

The government is administered by a governor-general appointed by the king of Denmark, and a council (*althing*) composed of 26 members, of which five are nominated by the crown, and the rest elected by the people—one for the town of Reikiavik, and one for each of the twenty syssels, or sheriffdoms into which the four *limits* (districts) of the island are divided for administrative purposes.

The chief town is Reikiavik (also written Reykjavik, and Reikavig), with a population in 1865 of 1,350 inhabitants, and is the residence of the governor, the place of meeting of the althing, the home of the bishop, and the locality of the college, the observatory, the public library of 8,000 volumes, and the Icelandic Society (established in 1794). Three newspapers are printed here, and since 1530, when the first printing press was set up by Mathieson, a Swede, books have been annually printed in Icelandic—original and translated. Among the latter are versions of Milton's Paradise Lost, and the productions of Shakspeare, Pope and Cowper.

The first formal school came in with the Christian church, about the year 1098, at which time two bishoprics were established by law. In 1540 the Lutheran religious teaching prevailed, and in 1551 was formally established, and the Catholic mass was forbidden. The island now constitutes one diocese which is divided into 184 parishes. Every clergyman keeps a register, and is forbidden to solemnize the marriage of any female who cannot read. By thus providing for each household a mother who can read, the basis and agency of domestic instruction is secured, as Pestalozzi aimed to secure the same by his *Leonard and Gertrude*, and *How Gertrude Teaches her Children*, for Switzerland. And it is rare to find a native born Icelander who can not read and write. The only school of a higher order is now at Reikiavik (until 1846 at Bessestad or Bessastadir, near Keikiavik) with six teachers and a library of 2,000 volumes. Pupils who wish to pursue the study of law or medicine, must resort to Copenhagen. In the home college there is a theological course, and besides Latin, the French and German languages are taught.

The instruction of children is mainly domestic. Each house is a school of intellectual, religious, and industrial training, after a crude fashion. The long winter evenings are given to reading, to traditional lore, to in-door occupation (by which every child is trained to such handicrafts as the necessities of their position require—making fishing-tackle, boats, casks, sails, &c.), and the women to knitting, and working up moss, skins, feathers, and eider-down into marketable and domestic use. Every able-bodied adult can do something for a livelihood; and the highest dignitary of Iceland—judge, governor, or bishop, can, if occasions require, shoe his own horse, and repair his own boat and tackle, or land vehicle, and harness.

Under such conditions of physical destitution and isolation, with such restricted means of formal instruction, the general education, the language and literature of Iceland are subjects, not only of historical but of living interest to the scholar and statesman. The language is now nearer the standard of that used in old Scandinavia, than in any portion of the Scandinavian peninsula. Its literature, developed in such form and substance, as early as the twelfth century, as not only to reflect and perpetuate the beliefs and manners of the people through successive generations, but has imparted its inspiration to bards and historians far beyond the narrow limits and population for which it was originally produced. The prose-poem called the *Edda*, collected in its present form in 1192, and the Chronicles or *Sagas*, which contain the mythology of the North, before and after it was influenced in the popular beliefs by the spread of Christianity, still attract the attention of the antiquary, the ethnologist, and philologist.

But the condition of the people, wresting a scanty support from such hostile elements, so isolated from the civilizing influences of a varied commerce, living in such rude structures devoid of nearly every convenience as well as the facilities of common cleanliness of a well ordered dwelling, inter-marrying among blood relations—is anything but satisfactory, in spite of universal intelligence of a low grade, or of an honesty in ordinary dealings, which may be as much the result of the absence of temptation, as of religious teaching.

II. PRESENT CONDITION.

Since the foregoing account was prepared, under the lead of Prof. Nissen, and other practical educators, great improvements have been introduced into the legal organization and administration of public schools of every grade, and particularly into the methods of instruction and discipline of the popular schools. By the revision of the School Law of May, 1860, the obligation of parents to send their children to school regularly, from the completion of their eighth year to their confirmation, and to secure their attendance at all public examinations of the school, is clearly defined, and fines for their neglect, increasing in amount from repetition, imposed. The establishment of infant schools for children too young to attend the regular common schools, and of a higher popular school for the older children whose parents desire to have attend the classical or scientific gymnasium, is made obligatory on the local communities. Children employed in factories or workshops of any description must attend school for a portion of each year, in special schools to be provided for them by their employers. The frequent and intelligent inspection of the schools is secured, as well as the better professional training of teachers.

By a law of 1867 the Higher Public Schools are brought into a more systematic organization, and into harmony with the popular schools below, and the superior instruction opened in the University at Christiania, and the higher technical institutes, which are now provided for. These schools (the Middle or Intermediate Schools, and Gymnasiums, of both the classical and the scientific grade) are now an essential part of a system of public instruction extending from the infant school to the professional schools of theology, law, medicine, engineering, and other occupations of society.

The following statistics of schools, attendance, teachers and salaries, relate to the rural districts for 1861 and 1863:

	1861.	1863.
Number of school districts,	6,189	6,317
Number which had itinerating schools,	3,620	2,757
Number of children (over 8 and under 15) due to the school,	200,273	204,139
Number who attended stationery schools,	93,172	138,156
Number of children who attended regularly either the itinerative or stationary schools,	122,657	159,578
Amount paid for salaries of teachers	$583,200	775,719
" " for land for schoolmasters,	30,055	100,738
" " for building and repairing school houses,	136,906	534,123

From these statistics it appears that there is commendable progress in the essential particulars of permanent schools, buildings, attendance, and teaching.

The following table gives a more complete summary of the elementary and higher schools in all the cities and large towns in 1868.

TABLE I.—*Primary and Secondary Education in the Cities and Towns of Norway, January 1, 1868.*

City or town.	Population.	Elementary schools.						Higher elementary schools.*				Secondary schools.†				
		Schools.	Teachers, male.	Teachers, female.	Scholars.	Income.‡	Expenses.‡	Schools.	Scholars.	Teachers.	Expenses.‡	Schools.	Scholars.	Teachers.	Income.‡	Expenses.‡
1. Aalesund	3,432	2	5	2	573	3,622	2,409	1	64	8	1,188	1	97	10	3,920	3,846
2. Arendal	3,658	1	3	....	215	858	832	....	......	....	....	1	124	11	4,706	4,784
3. Bergen	27,703	12	23	13	2,405	12,331	12,331	....	......	....	....	1	167	17	12,923	11,416
4. Brevig	2,162	1	3	2	301	873	5[illegible]6	1	77	3	289	....	......	....	....	....
5. Christiania	57,382	4	45	18	5,276	22,242	22,212	1	369	22	6,964	1	136	13	13,989	12,961
6. Christiansand	10,876	12	11	3	1,076	3,727	3,727	1	170	11	2,000	1	129	12	6,289	6,758
7. Christiansund	5,709	8	11	3	1,035	3,910	3,159	....	......	....	....	....	......	....	....	....
8. Drammen	13,632	2	13	....	1,413	5,436	4,804	....	......	....	....	1	252	22	9,821	9,846
9. Drobak	1,662	1	2	....	247	380	380	1	40	3	820	1	79	10	4,062	4,045
10. Egersund	2,145	1	5	....	400	961	937	1	44	4	1,149	....	......	....	....	....
11. Farsund	1,416	1	2	....	187	547	518	1	45	3	746	....	......	....	....	....
12. Flekkefjord	1,622	1	2	....	172	480	480	1	54	3	821	....	......	....	....	....
13. Frederickshald	9,219	1	9	....	1,340	2,981	2,983	....	......	....	....	1	174	12	6,273	6,248
14. Frederickstad	4,820	1	9	3	801	2,226	2,226	1	140	10	3,700	....	......	....	....	....
15. Grimstad	1,501	1	2	....	166	326	386	1	102	6	2,455	....	......	....	....	....
16. Hammer	1,868	1	2	1	319	638	638	1	53	4	1,070	....	......	....	....	....
17. Hammerfest	1,547	1	3	....	188	1,407	1,311	1	52	4	1,380	....	......	....	....	....
18. Haugesund	3,321	1	3	....	367	1,981	1,989	1	51	2	980	....	......	....	....	....
19. Holmestrand	2,084	1	3	....	234	500	500	1	46	4	1,220	....	......	....	....	....
20. Horten	6,192	2	9	....	1,112	2,819	2,721	1	109	9	2,321	....	......	....	....	....
21. Kongsberg	5,011	4	7	4	1,038	2,676	2,394	....	......	....	....	1	67	8	3,597	3,805
22. Krageræ	4,089	3	5	2	479	1,452	1,270	1	47	3	784	....	......	....	....	....
23. Laurvig	6,327	7	7	....	974	1,862	1,862	1	123	4	570	1	58	6	3,033	3,038
24. Levanger	1,017	1	2	....	149	463	439	1	69	5	1,188	....	......	....	....	....
25. Mandal	3,842	2	6	....	489	1,278	1,278	1	123	9	2,297	....	......	....	....	....
26. Molde	1,691	1	2	....	275	485	467	....	......	....	....	1	72	9	4,521	4,536
27. Moss	4,129	1	4	1	552	1,368	1,368	1	83	6	1,620	....	......	....	....	....
28. Namsos	1,189	1	3	1	154	300	300	1	14	1	408	....	......	....	....	....
29. Oesterrisöer	2,335	1	3	....	408	623	621	1	45	3	830	....	......	....	....	....
30. Porsgrund	2,774	2	5	....	325	1,742	1,085	1	80	3	700	....	......	....	....	....
31. Sandnæs	1,000	1	2	....	175	358	358	1	14	1	100	....	......	....	....	....
32. Sarpsborg	2,189	1	3	2	352	840	840	1	100	5	1,833	....	......	....	....	....
33. Skien	4,773	2	7	1	636	1,871	1,772	1	9	1	100	1	118	12	6,340	6,186
34. Stavanger	16,647	3	17	5	2,560	5,579	5,578	....	......	....	....	1	308	20	10,295	10,047
35. Tönsberg	4,541	1	5	1	471	4,165	3,438	1	161	7	2,226	....	......	....	....	....
36. Tromsöe	4,673	2	3	....	355	979	979	1	66	6	1,048	1	106	11	4,610	4,783
37. Trondhjem	19,287	8	28	7	2,526	13,871	12,075	....	......	....	....	1	129	13	9,379	8,374

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* Burgher schools with real classes.

† Gymnasia and real-schools.

‡ In

TABLE. *Statistics of Popular Schools in Sweden*—1867–68.

DIOCESE. (*Stift.*)	Officially Organized School District.	No. of Children between the ages of 6 and 14 years.	SCHOOLS.			No. of localities for Itinerating School.	Schools Wanted.		Parish Libraries. *Soken-Bibliothek.*	Schools which follow the legal programme. *Lasordning.*	No. of Children. Roll of Pupils.	No. of Children in Itinerant School at time of Inspection.	No. of Children passed at date of Inspection.	Studies, and Number of Children in each at the time of Visitation.												
			Stationery. *Fasta Folkskolor.*	Itinerating *Hyttande.*	Primary. *Smaskolor.*		Stationery.	Primary.						Bible History.	Catechism.	Spelling and Reading.	Grammar & Language.	History and Geography.	Natural History.	Geometry and Linear Drawing.	Arithmetic.	Penmanship.	Singing.	Gymnastics.	Gardening.
Upsala.......	232	51,736	314	81	298	399	19	62	218	452	33,667	4,956	20,911	18,084	16,636	19,863	6,484	8,357	7,972	2,878	19,516	19,882	12,275	9,174	1,735
Linköping....	188	53,578	183	138	210	415	35	62	126	284	37,595	5,369	10,782	17,474	17,338	18,504	8,956	5,244	3,858	1,787	17,465	17,828	12,383	7,307	1,746
Skara........	224	56,912	203	67	244	338	54	114	160	358	38,154	4,832	17.965	14,582	13,973	14,658	4,889	6,157	5,073	2,343	12,644	16,791	12,585	9,486	2,256
Strengnas.....	134	41,281	211	61	184	166	33	119	126	316	23,589	3,144	17,894	13,677	13,527	16,968	4,113	8,278	4,822	2,108	14,495	17,395	6,484	5,408	1,521
Westeros.....	108	52,424	172	60	574	123	20	18	107	305	35,682	3.172	13,854	12,259	11,939	13,234	3,900	5,591	5,294	2,119	12,096	13,904	11,207	6,514	1,549
Wexiö........	164	50,525	44	159	320	508	12	37	103	182	25,911	8,452	11,081	10,887	10,973	11,050	1,513	4,877	7,016	1,321	10,238	10,802	8,421	4.666	892
Lund.........	417	102,410	603	57	484	278	24	84	221	896	78,245	4,371	43,064	36,612	35,082	31,488	14,579	15,029	11,409	3,860	30.886	37,388	15,011	12,238	1,847
Goetheborg...	202	67,039	187	140	408	704	69	127	66	444	46,828	6,977	20,801	23,352	22,831	18,026	5,841	8,153	7,139	2,586	22,551	23,914	8,862	6,129	1,168
Kalmar.......	64	24,970	53	32	92	60			31	45	3,546		1,634	268	284	8	7	88	61	14	287	256	200	140	128
Karlstad......	135	73,858	27	247	302	1619	25	55	134	285	47,662	20,770	19,641	16,071	14,883	14,418	5,223	4,019	3,059	606	11,439	19,173	14,902	5,718	357
Hernoesand...	142	60,974	101	118	252	465	99	144	100	226	18,960	5,971	8,385	6,907	7,082	8,246	2,306	2,950	1,954	728	6,537	7,562	5,253	2,260	243
Wisby.......	74	7,312	74	1	21	10	1	18	45	105	5,366	99	4,398	3,120	3,074	4,397	809	1,342	904	328	4,370	4.386	3,154	1.617	494
Total.....	2084	643,019	2172	1161	3389	5085	391	840	1437	3898	395,205	68,113	199,410	173.293	167,622	170,860	58,620	70,085	59.161	20,778	162,524	188,578	110,739	70,657	13,936

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ENGLISH PEDAGOGY IN THE NINETEENTH CENTURY.

FREDERICK WILLIAM TEMPLE.

FREDERICK W. TEMPLE, D. D., was born Nov. 30, 1821, and educated at the Grammar School at Tiverton, and Oxford (Balliol College), where he took his degree in 1842 as a double first class. He was elected Fellow and Tutor, and after his ordination in 1846, became Principal of the Training College for masters of Pauper Schools at Kneller Hall in 1848. This post he resigned in 1855, to become Inspector of Schools, in which he continued till 1858, when he was made Head Master of Rugby School, from which high position he was promoted to the See of Exeter, to succeed Bishop Philpotts. His evidence and opinions on the studies of secondary schools had great weight with the Public Schools Commission, which reported to Parliament in 1864. He was the author of the first of the seven "*Essays and Reviews*" which caused some controversy as to his orthodoxy at the time (1860), and of a volume of *Sermons Preached in Rugby Chapel* in 1858-60.

*Greek and Roman Language and Literature.**

I can not suggest any change in our system of education. By degrees the present system may be much improved. But I understand the Commissioners to ask whether I wish to suggest, not such alterations as we can make for ourselves, and I trust are endeavoring to make, but such as would require superior authority to introduce: the total or partial surrender, for instance, of the classics as the staple of instruction. Such alterations I can not advise.

The studies of boys at school fall under three heads,—literature, mathematics, and physical science. For every branch of each of these studies very strong arguments may be adduced. A boy ought not to be ignorant of this earth on which God has placed him, and ought therefore to be well acquainted with geography. He ought not to walk in the fields in total ignorance of what is growing under his very eyes, and he ought therefore to learn botany. There is hardly an occupation in which he can be employed where he will not find chemistry of service to him. Mathematics rule all other sciences, and contain in themselves the one perfect example of strict logic. It is absurd that an English youth should be ignorant of the history of England; equally absurd that he should not be well acquainted with its noble literature. So each study in its turn can give reasons why it should be cultivated to the utmost. But all these arguments are met by an unanswerable fact—that our time is limited. It is not possible to teach boys every thing. If it is attempted, the result is generally a superficial knowledge of exceedingly little value, and liable to the great moral objection that it encourages conceit and discourages hard work. A boy who knows the general principles of a study, without knowing its details, easily gets the credit of knowing much, while the test of putting his knowledge to use will quickly prove that he knows very little. Meanwhile he acquires a distaste for the drudgery of details, without which drudgery nothing worth doing ever yet was done.

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* Extract from communication to the Public Schools Commission, 1864.

It is therefore necessary to make a choice among these studies, to take one as the chief and to subordinate all others to that. It is an accident, but I think a most fortunate accident, that in England the study thus chosen to take the lead in our highest education has been that of the classics. I should not be prepared to maintain that the only possible system of education for all ranks in this country is one based on the classics. But I assume that the schools commonly called public schools are to aim at the highest kind of education; and to give that education, I think the classics decidedly the best instrument. When we have to choose between literature, mathematics and physical science, the plea advanced on behalf of the latter is *utility*. They supply a man with tools for future work. Man's chief business, it is said, is to subdue nature to his purposes, and these two studies show him how. Those who use this plea seem to forget that the world in which we live consists quite as much of the men and women on its surface, as of the casts of its constituent materials. If any man were to analyze his own life he would find that he would have far more to do with his fellow-men than with any thing else. And if, therefore, we are to choose a study which shall preëminently fit a man for life, it will be that which shall best enable him to enter into the thoughts, the feelings, the motives of his fellows.

The real defect of mathematics and physical science as instruments of education is that they have not any tendency to humanize. Such studies do not make a man more human, but simply more intelligent. Physical science, besides giving knowledge, cultivates to some degree the love of order and beauty. Mathematics give a very admirable discipline in precision of thought. But neither of them can touch the strictly human part of our nature. The fact is that all education really comes from intercourse with other minds. The desire to supply bodily needs and to get bodily comforts would prompt even a solitary human being—if he lived long enough—to acquire some rude knowledge of nature. But this would not make him more of a man. That which supplies the perpetual spur to the whole human race to continue incessantly adding to our stores of knowledge that which refines and elevates and does not merely educate, the moral nor merely the intellectual faculties, but the whole man, is our communication with each other, and the highest study is that which most promotes this communion, by enlarging its sphere, by correcting and purifying its influences, by giving perfect and pure models of what ordinary experience can for the most part only show in adulterated and imperfect forms.

The same thing is said in another way when we assert that that study is the chief instrument of education which makes a man in the fullest sense a Christian gentleman. Taking this word in its highest and best meaning, it certainly represents the aim of the highest education. Now of course it is quite certain that more than half of all education in any given instance, comes not from the studies but from the teacher. If teachers at school and parents at home are gentlemen, they will do more to make the boys the same than any study can do. But this perhaps would remain the same whatever study we make the chief; meanwhile so far as the study selected can influence the result,—and it would be absurd to deny that its influence must be great—that study will do so most which most familiarizes a boy's mind with noble thoughts, with beautiful images, with the deeds and the words which great men have done and said, and all others have admired and loved. So again all studies up to a certain point help each other. I have no doubt at all that a boy of eight, who has been well instructed in arithmetic, will find it easier to learn Latin than one who has not. And so physical science will prepare the way in some degree for mathematics. Every study has a considerable power of helping every other study. But among all the possible studies this power appears to me preëminently to belong to those which I have classed under the general name of literature. I believe the kind of education given in a public school is preëminently that which fits a youth to take up any study whatever. When I had to deal with a very different class of minds, the students of Kneller Hall, I found that studies of the sort included under the name of literature did more to fit them for all other studies than any thing else that I could teach them. My experience here is still the same. I once asked a tradesman who had himself been at Rugby School, and was intending to send his son, whether he had learnt any thing here that was of use to him afterwards. He answered: "I was at school several years, and I have never regretted it. I learnt there what I don't think I could have learnt as well any where else, how to learn any thing I wanted." The Principal of Wellington College, who has peculiar facilities for deciding this question, has come, I believe, to the same conclusion. The studies pursued at a public school, and the method of study, do not always give a boy the precise thing that he wants for immediate use in after life, but they give a training which enables him to study almost any thing afterwards with ease. I must repeat what I said above, that I am not now considering whether other systems of education may not be needed in this country; but whether it would be wise to change the system in use in our public schools. If the staple of education is to be found in the different branches of literature, the classics in a perfect system must be the substratum. In the first place, modern literature is not fully intelligible, except to those who have studied the classics. A student of mathematics does not find it any help to him to study the early writers on the science. No one is aided in learning the differential calculus by going back to fluxions. Nor will the study of physical science gain much by beginning with the writings of earlier discoverers. But literature can only be studied thoroughly by going to its source. Modern theology, modern philosophy, modern law, modern history, modern poetry, are never quite understood, unless we begin with their ancient counterparts.

In the next place, the perfect and peculiar beauty of the classical literature will always put it at the head of all other. Thirdly, the classic life contains, as Mr. J. S. Mill has remarked, "precisely the true corrective for the chief defects of modern life. The classic writers exhibit precisely that order of virtu 's which we are apt to be deficient. They altogether show human nature on a grander scale, with less benevolence, but more patriotism,—less sentiment, but more self-control; if a lower average of virtue, more striking individual examples of it; fewer small goodnesses, but more greatness, and appreciation of greatness; more which tends to exalt the imagination and inspire high conceptions of the capabilities of human nature." If, as every one must see, the want of affinity of these studies to the modern mind is gradually lowering them in popular estimation, this is but a confirmation of the need of them, and renders it more incumbent on those who have the power, to do their utmost to aid in preventing their decline. Lastly—and this is a practical consideration of the greatest weight—the classical system of education has been in possession of our great schools for two centuries; and in consequence, the best method of using classical learning for purposes of education is so far understood, that it is comparatively easy to find thoroughly efficient masters. How far from easy it is to find thoroughly efficient masters of the modern languages, every one knows. Men who can teach French or German can be found; but it is exceedingly difficult to find any man who can so teach French and German as at the same time to form the minds and characters of the learners.

One obvious reply may be made to all this: that many boys need something more than the cultivation of their faculties. The necessities of their life require them to be furnished, over and above this, with knowledge which can be immediately applied to the business of life. Even if they have learned how to learn, others, who have already got the peculiar learning required, will have the start of them, which, in this age of competition, can never be made up. This is to some extent true, and I think it clear that in this country there is room for other systems of education besides the classical. I should be glad to see great schools established in which Greek was left optional, or nearly so, and Latin, French and German made the staple of instruction, while a little more time was allowed to mathematics and physical science. The education would not be so good, but would be more ready for use; and though not equal to the classical, need not fall short of it. Such a school, or very nearly such a school, is Wellington College; and the modern departments of Cheltenham and Marlborough Colleges approach the same idea. But I think it would be most unwise, because such schools are needed, to attempt to convert the public schools to the purpose; nor should I consider it wise to follow the Cheltenham and Marlborough example, by attaching modern departments to the public schools. The classical work would lose; the other work would not gain.

ROBERT LOWE.

Robert Lowe was born in Bingham in 1811, and educated at Winchester, and at University College, Oxford, where he graduated in high honors in 1833; was elected Fellow of the Magdalen in 1835, and became tutor at Oxford. After being called to the Bar, by the Society of Lincoln's Inn in 1842, he practiced law in Australia, where he sat in the council of that colony from 1843 till 1850, when he returned to England. In 1852 he became joint Secretary of the Board of Control from 1852 to 1855; Vice-President of the Board of Trade and Paymaster General in 1855, and Vice-President of the Education Board from 1859 to 1864. He was elected member from Kidderminster in 1852 and for Calme in 1859. He was made Chancellor of the Exchequer under Gladstone in 1868. He was the author, or at least the main advocate, of the policy of paying out the appropriations for primary education according to results in teaching the elementary branches, ascertained by the examination of the schools by authorized inspectors. In Parliament, and with his pen, he ranks with the advocates of a modern curriculum.

CLASSICAL EDUCATION.*

It seems to me, if one can form an abstract idea of what ought to be taught, that it is to teach a person every thing important to know, and, at the same time, to discipline his mind. But as the period during which education can be communicated is very short, we must qualify that view, I think, by saying that the business of education is to teach persons as much of that which it is important they should know as can be taught within a limited time, and with reference to the ordinary faculties of mankind, and that also in so doing care should be taken to discipline the mind of the pupil as far as possible. That is what I conceive to be the object of education. Well, that being so, you see a question arises of very great difficulty—What is it most important that persons should know?—and till we can answer that question, we can not satisfactorily solve the question which I am now proposing to consider—What is the education that ought to be given to the middle and upper classes of this country? We must invent for ourselves a sort of new science—a science of weights and measures; of ponderation, if I may coin a word—in which we shall put into the scales all the different objects of human knowledge, and decide upon their relative importance. All knowledge is valuable, and there is nothing that it is not worth while to know; but it is a question of relative importance—not of decrying this branch of knowledge, and praising and puffing that—but of taking as far as possible the whole scale of human knowledge, and deciding what should have priority, which should be taught first, and to which our attention should be most urgently directed. That is a problem, you will allow, of most enormous difficulty. I can only suggest one or two considerations which may assist us in solving it. I think it will be admitted by all who hear me that as we live in a universe of things, and not of words, the knowledge of things is more important to us than the knowledge of words. The first few months and the first few years of a child's existence are employed in learning both, but a great deal more in making itself acquainted with the world than with the knowledge of language. What is the order of Nature? Nature begins with the knowledge of things—then with their names. It is more important to know what a thing is, than what it is called. To take an easy illustration, it is more important to know where the liver is situated, and what are the principles which affect its healthy action, than to know that it is called *jecur* in Latin or ἧπαρ in Greek. I go a little farther. Where there is a question between true and false, it is more important to know what is true than what is false. It is more important to know the history of England than the mythologies of Greece and Rome. I think it more important that we should know those transactions out of which the present state of our political and social relations have arisen, than that we should know all the lives and loves of all the gods and goddesses that are contained in Lempriere's dictionary. And yet, according to my experience—I hope things are better managed now—we used to learn a great deal more about the Pagan than the Christian religion in the schools. The one was put by to Sunday, and dismissed in a very short time; the other was every day's work, and the manner in which it was followed out was by no means agreeable. The slightest slip in the name or history of any of the innumerable children of the genealogy of Jupiter or Mars was followed by a form and degree of punishment which I never remember being bestowed upon any one for any slip in divinity. Then, gentlemen, I venture to think, as we can not teach people every thing, it is more important that we should teach them practical things than speculative things. There must be speculation, and there must be practice, but I think if we can not do both, we should rather lean to the practical side. For instance, I think it more important that a man should be able to work out a sum in arithmetic, than that he should be acquainted with all the abstract principles of Aristotle's logic, and that the moods of a syllogism are not so important as the rule of three, practice, and keeping accounts. If we must choose in the matter, we should lean to the practical side. One more rule I will venture to submit—they are four in all—if we must choose in these matters, the present is more important to us than the past. Institutions, communities, kingdoms, countries, with which we are daily brought into contact, are more important than institutions, kingdoms and countries that have ceased to exist for upwards of 2,000 years. I will pursue this topic no farther.

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* *Primary and Classical Education:* An Address at Edinburgh, November 1, 1867. By Rt. Hon. Robert Lowe, M. P.

Having made these general observations as my little contribution towards the new science of ponderation or measurement which I am anxious to found, to enable us to compare one branch of knowledge with another, I will proceed, with your permission, to inquire how far the education of the middle and upper classes corresponds with this idea. Without going into detail, I may say the principal subjects of education—I don't say in Scotch Universities, for you are more liberal than we are in England, though even in your universities not quite sufficiently so—in Oxford and Cambridge are analytical mathematics, and what are called the learned languages—viz., Latin and Greek.

Now I admit that mathematics are a most admirable study, and are calculated to train the mind to strict habits of reasoning, and habits of close and sustained attention. But these are the synthetical, not the analytical mathematics. Consider to what this form of study trains a man. It educates him to approach a subject analytically. He takes his conclusion for granted, and then investigates the conditions upon which it rests. Well, that is not a good way of reasoning. The best way of reasoning is to fix upon principles and facts and see what conclusion they give you, and not to begin with a conclusion and see what principles or facts you may be able to pick up in order to support it. Then any one who has gone through this training, knows that you go by steps. One understands step by step, but the whole very often eludes our grasp, and we find ourselves landed in a conclusion without knowing how. We see each step we have taken, but we see not how we arrived at the conclusion. This is a system in one sense too easy, because each step is easy; and in the other it is too difficult, because it is an immense strain on the mind to grasp the whole effect of what is done. Then you are aware of this also, that perhaps the most useful lesson a man can learn is the estimation of probabilities and sifting of evidence. But this is wholly excluded from mathematics, which deal purely with necessary truth. Therefore, it has often been observed, and by no one more forcibly than your own Sir William Hamilton, that a mind formed upon this kind of study is apt to oscillate between the extreme of credulity and scepticism, and is little trained to take those sensible and practical views of the probabilities and the possibilities affecting our daily life, upon which, far more than upon abstract reasoning, the happiness of mankind depends. I may here mention in illustration what was said by a great judge of men and ability—Napoleon Buonaparte. He took for one of his ministers La Place—one of the greatest, perhaps the greatest of mathematicians, and he said of him—"He was a geometer of the first rank; but whose only idea of transacting the business of his department was with reference to the differential and integral calculus."

Now, I pass on to the other study that is the principal occupation of our youth, and that is the study of the Latin and Greek languages, and the history, science, geography, and mythology connected with them—the principal study being language, and the rest only accessories to it. Now, it strikes one, in the first instance, it is rather a narrow view of education that it should be devoted mainly—I had almost said exclusively—to the acquisition of any language whatever. Language is the vehicle of thought, and when thought and knowledge are present, it is desirable as the means of conveying it. It is not a thing to be substituted for it—it is not its equivalent. It pre-supposes knowledge of things, and is only useful where that knowledge is attained for the purpose, namely, of communicating it. I will venture to read a few lines from Pope in illustration of what I say; I should only weaken the thought if I attempted to state the effect of them. They are 140 or 150 years old, and that only shows you how abuses and mistakes may be pointed out in the most vigorous language, and with the most conclusive reasoning, and yet they may remain utterly uncared for:—

Since man from beasts by words is known,
Words are man's province; words we teach alone,
When reason doubtful, like the Samian letter,
Points him two ways, the narrower is the better.
Placed at the door of learning youth to guide,
We never suffer it to stand too wide,

To ask, to guess, to know, as they commence,
As fancy opens the quick springs of sense,
We ply the memory, we load the brain,
Bind rebel wit, and double chain on chain,
Confine the thought, to exercise the breath,
And keep them in the pale of words till death.

I think it is a poor and imperfect conception of education that should limit it to the learning of any languages whatever; but surely if we are to make language the whole or a part of education, it should be the language which we are most concerned with; and I must be permitted to say that in my science of ponderation I think English has a prior claim over Latin and Greek. I do not disparage Latin or Greek; but I am speaking of what is most important to be taken first; and I think it is melancholy to consider the ignorance of our own language in which the best educated of our young men are brought up. Latin is, of course, of great use. It is the only means of opening up a great store of information which is locked up in it, and which is not to be found elsewhere. It has a noble literature of its own, and it is the key to most of the modern languages, and therefore it is a study of very great importance. But we must remember that those persons who spoke a language which was the most marked by felicity of expression, and which is the model of all literature—the inhabitants of Greece, I mean—knew no language but their own. The Romans knew just enough Greek to make them neglect their Latin, and the consequence is their literature is inferior to that of the race that came before them who knew one language. And only see how you set about learning these languages. Learning the language is a joke compared with learning the grammar. The grammar is one thing, and the language another. I agree with the German wit, Heine, who said—"How fortunate the Romans were that they had not to learn the Latin grammar, because if they had done so they never would have had time to conquer the world." Montaigne, 300 years ago, saw this, and pointed it out most forcibly, and by learning the language colloquially, "without a lash, without a tear," he became able to speak it by being talked to in Latin. But that would not answer the purpose. Because it is said "you must discipline the mind," therefore a boy is put through torture of elaborate grammars, which he is forced to learn by heart, and every syllable of which he forgets before he is twenty years of age. There seems something like a worship of inutility in this matter; it seems to be considered very fine to learn something that can not by possibility do any body any thing of good—

The languages, especially the dead,
The sciences, especially the abstruse—
The arts, at least all such as could be said
To be the most remote from common use.

It is an idea that a thing can not be good discipline for the mind unless it be something that is utterly useless in future life. Now, I do not think so. There is no doubt that Greek is a language of wonderful felicity of expression; but what is more beautiful, more refined, or will exercise taste better than to study the best modern French prose to be found in M. Prevost Paradol, Sainte Beuve, and other French writers? There is nothing that can approach it in the English language. If a man wishes to exercise himself in these things he can not possibly have a better subject than French prose. The discipline of the mind is quite as good, and it has this advantage, that when he goes to Paris he will be able to go to a hotel and make known his wants without becoming a laughing-stock to everybody; but this would be too useful, and therefore this must be put aside for some discipline in the Greek language, which he is sure to forget before he is thirty. It depends upon what you mean to make men. If you want to make them a race of sophists, poetasters, and schoolmasters, we are going about it in the right way; but for the business of life we have a little too much Latin and Greek, and if we are to have them taught, they ought to be taught on a very different system. There is nothing more absurd than to attempt to untie knots that have never been tied. If language had been made on a set of general principles—if it had been laid down by the wise men of all nations that the nominative should always agree with the verb, and a verb should always govern the accusative—and language had been made like Euclid—every one of these rules which had been tied we could untie, and a language having been put together in that way we could analyze it into rules. But, gentlemen, language was not so made. Language grew we know not how—like a tree or a plant; it was not made under general rules, and therefore, when you are trying to form general rules for it, you are sowing the sand—you will never attain to what you want; and the result is that when you come to reflect, you will find that you have wasted much time, and the best years of your life have been made miserable by studying rules, whose exceptions are often as numerous as their illustrations, and of which you never know whether they apply or not.

Latin Versification.

There is another thing I enter my protest against, and that is Latin verses. I do not think the history of poets is so prosperous that the end and object of mankind should be to make as many young people as possible poetasters. One of the least profitable of the little talents that a man can have is that of scribbling verses, and yet years of our lives are taken up in the attempt to teach us to write Latin verses, which, after all, are a mere cento of expressions stolen from different authors, the meaning of which we may not ourselves know. I know that I have been highly commended for verses I could not construe myself. This of course gives a most unfair predominence to boys who have been early taught how to use a gradus. The knack is so absurd and repulsive that no one ever acquired it late in life. It must be taught early if at all. I have known men of high classical attainments who have not got honors because they have not had the knack of stringing words together, called doing Latin verses. There is a movement going on against the system, and I hope we shall get rid of it. Another absurd thing is this—I think that a man knows a language when he can read with fluency and ease a good, plain, straightforward author, who writes grammatically and sensibly. This may very soon be done in Latin and Greek; but that is not half enough. There is no torture in that—that is very simple. But what you must do is to take a place that is hopelessly corrupt, where the amanuensis has gone to sleep, or has been tipsy, or has dropped a line, or something or other; you must read two or three pages of notes by everybody who has read at these places, written in bad Latin, stating their idea of how they ought to be reformed and translated. If Æschylus came to life again he would be easily plucked in one of his own choruses; and as for Homer, I am quite certain he did not know the difference between the nominative and accusative case; and yet the best hours of our lives are spent in this profitless analysis of works produced by men utterly unconscious of the rules we are endeavoring to draw from them.

Ancient History.

Ancient history is a very important matter, and a very beautiful study; but it is not so important as modern history, and it does not bear nearly so much upon our transactions. Consider what it is. Ancient history has but two phases—the one is a monarchy, the other is a municipality. The notion of a large community existing by virtue of the principle of representation—of a popular government extended beyond the limits of a single town—is a thing that never entered into the minds of the ancients, so that the best years of our lives are spent in studying history in which that which makes the difference between modern history and ancient—the leading characteristic of our society—that principle of representation which has made it possible in some degree to reconcile the existence of a large country with the existence of a certain amount of freedom—was utterly unknown. The Roman Empire was established, from the necessity of the case, because when Rome became too large to be a municipality, the ancients knew of no other means than to place a Cæsar—a tyrant—over the whole of it, and the idea of sending, as we should do, representatives of the different provinces to meet in Rome, and consult upon the general welfare of the Empire, never occurred to them. That was not known at that time. That was a discovery of many hundred years later. And yet to study all this history, which wants the one thing that is the leading characteristic of modern history, the best time of our life is devoted. I do not say that the time is thrown away, but it is melancholy to reflect that this history is taught, not as an adjunct but as a substitute for modern history. If a man has a knowledge of modern and mediæval history, it is important that he should have this knowledge of ancient history with which he has to compare it; but if he has no modern history he has not the means of comparison. It is useless then by itself. That state of things has utterly passed away. It perished, never to return, with the fall of the Roman Empire, and on its ruins sprung up a new state of things—the feudal system and the polity of the Middle Ages, which ripened into the present state of things. Of all that our youth are taught nothing—they know nothing of it. The subject is never brought before them, and their study is limited and confined to the wars and intrigues of petty republics, the whole mass of which would hardly, perhaps, amount to as many people as are in this great city. There is a well-known passage in a letter by Servius Sulpicius, one of Cicero's friends, in which he endeavors to console him for the death of his daughter Tullia. This is a translation of it:—"Behind me lay Ægina, before me Megæra, on my right Piræus, on my left Corinth; these cities, once so flourishing, now lie prostrate and demolished before my eyes. I thought, 'Are we little mortals afflicted when one of us perishes, whose life must at any rate be brief, when in one place lie the corpses of so many towns?'" Well, that is one way of looking at the question. I have been in the same place, and also had my thoughts, and I thought how many irretrievable years of my life have I spent in reading and learning the wars, and the intrigues, and the revolutions of these little towns, the whole of which may be taken in at a single glance from the Acropolis of Athens, and would not make a decently-sized English county. I think that reflection must force itself on the mind of any one who has gone to Greece, and has seen the wonderfully small scale on which these republics are laid out, to which the earlier years of his life were almost exclusively devoted.

Idea of Progress Wanting.

There is another great fault in this exclusive direction of the mind of youth to antiquity, and that is, that their conception of knowledge wants entirely that which is our leading conception in the present day. I do not think that you will find any where in the study of antiquity that which is now in everybody's mouth—the idea of progress. The notion of the ancients was that knowledge was a sort of permanent fixed quantity—that it could not be increased—that it was to be sought for; and if a man wanted to seek for knowledge he did not sit down and interrogate Nature, and study her phenomena, and also analyze and inquire, but he put on his seven-leagued boots and traveled to Egypt or Persia, or as far as he possibly could, in the expectation of finding some wise man there who could tell him all about it. That was the case with Plato, and almost all the great men of antiquity. Now it is no small fault of the modern system of education that it withholds that conception, the key of modern society—that is, not to look at things as stationary, but to look at the human race as, like a glacier, always advancing, always going on from good to better, from better to worse, as the case may be—an endless change and development that never ceases, although we may not be able to mark it every day. That conception is entirely wanting in the antique world; and therefore it is not too much to ask that that idea should be imparted to youth before we give so much time to study the state of society in which it is wholly wanting. I won't detain you with any discussion in this place on the morals and metaphysics of the ancients. I suspect that they knew as much of the mental sciences as we do now—neither much more nor much less; and, without speaking disrespectfully of them, we may say this, that no two of them had the same opinion on the same subject. Then we are dosed with the antiquities of the ancients. Every man is expected to know how many Archons there were at Athens, though he does not know how many Lords of the Treasury there are in London; he must know all the forms of their courts, though he knows hardly the names of our own. He must be dosed with their laws and institutions—things excessively repulsive to the young mind—things only valuable for comparing with our own institutions, of which he is kept profoundly ignorant.

Ancient Geography.

A large portion of time is spent in studying divisions of countries that have long ceased to exist, or have any practical bearing on the world. Of course, if you are to study the language of the ancients, these things must be learned; but is it not melancholy to think how much modern geography is sacrificed to this knowledge? There is nothing in which young men are more deficient than in geography. I shall just mention a few things within my own knowledge. Take, for instance, Australia. It is very rare to find a person who knows where the colonies of Australia are. The island of Java is said to have been given up by Lord Castlereagh at the Treaty of Vienna to the Dutch because he could not find it in the map, and was ashamed to confess his ignorance. I remember a very eminent member of the House of Commons indeed —I will not mention his name—who made a speech in which it was quite manifest to me that he thought that Upper Canada was nearest the mouth of the St. Lawrence, and Lower Canada was higher up the river. If I were to ellt you his name you would be astonished. Well, we are going to make an expedition to Abyssinia. The whole thing depends upon the nature of the country. Now, what do we know about it? There is a great deal to be known about it. A great many men have traveled there, and a great deal has been written about it. It is as much as most men can do to find it on the map, and very few know a single town in it. I have amused myself trying to see how few men know where Gondar, the capital of this country, is situated on the map; and as the prisoners we are going to attempt to rescue can probably only be reached by going there, and so to Magdala, it is nearly as important to know where it is as to know that Halicarnassus was the capital city of Caria, or that there were twenty-three cities of the Volscians in the Campagna of Rome. There is another illustration I may give. The name of the place is in the Bible, and we might have hoped better things. You will remember that Mr. Bright in last session of Parliament denominated certain gentlemen by a name derived from a cave. Well, I assure you, gentlemen, there was not one person in twenty whom I met who knew any thing about the Cave of Adullam, and I was under the melancholy and cruel necessity of explaining it to them, and of pointing the arrow that was aimed against my own breast. After all, gentlemen, education is a preparation for actual life, and I ask you—though no doubt the memory is exercised and the faculties are sharpened by these studies in some degree—whether they really in any degree fulfill that condition. I say there is nothing so valuable for a man as to avoid credulity. If he discounts a man's bill, he should inquire before he does it. But what we are taught by this kind of study, our attention being so much placed upon words, is to take every thing for granted. We find a statement in Thucydides, or Cornelius Nepos, who wrote 500 years afterwards, and we never are instructed that the statement of the latter is not quite as good as the former. And so with other things. The study of the dead languages precludes the inquiring habit of mind which measures probability, which is one of the most important that a man can acquire.

Deficiencies in the Education of a Public School or University Man.

I will now give you a catalogue of things which a highly-educated man—one who may have received the best education at the highest public schools, or at Oxford—may be in total ignorance of. He probably will know nothing of the anatomy of his own body. He will not have the slightest idea of the difference between the arteries and the veins, and he may not know whether the spleen is placed on the right or the left side of his spine. He may have no knowledge of the simplest truths of physics, and would not be able to explain the barometer or thermometer. He knows nothing of the simplest laws of animal or vegetable life. He need not know, he very often does not know, any thing about arithmetic, and that ignorance sticks to him through life; he knows nothing of accounts, he does not know the meaning of double entry, or even a common debtor and creditor account. He may write an execrable hand; good clear writing—perhaps the most important qualification a gentleman or man of business can possess—is totally neglected. He may be perfectly deficient in spelling. I knew an eminent person who got a first-class honor, and in his essay—a most excellent English essay—there were forty-six mis-spellings. He may know nothing of the modern geography of his own country; he may know nothing of the history of England. I knew an instance not long ago of a gentleman who had attained high honors at the University, and who became a contributor to a periodical, in which it was suggested he should illustrate some fact by reference to Lord Melbourne's Ministry. He said he had never heard of Lord Melbourne. He need know nothing whatever of modern history—how the present polity of Europe came into effect. He need know nothing of mediæval history, and that is a matter of serious importance, because important results have flowed from ignorance of that history. Great schisms have arisen in the Church of England from absurdly-exaggerated ideas of the perfection of every thing in that dreadful period; and the state of gross ignorance in which people are left as to these times seems almost to lead them to suppose that the best thing that modern society could aim at would be to return to the state of things which existed when the first crusade was projected. He may be in a state of utter ignorance of the antiquities or the law of England; he knows the laws and antiquities of Greece and Rome. The English laws and antiquities are bound up with our freedom and history, and are important to every day's business; but he knows about them nothing whatever. We have, I here say boldly, a literature unparalleled in the world. Which of our great classical authors is a young man required to read in order to attain the highest honors our educational institutions can give him? He studies in the most minute manner the ancient writings of Rome or Greece. But as for Chaucer and Spenser, or the earlier classics, the old dramatists, or the writers of the reigns of Queen Elizabeth and Charles I, he knows nothing of them; and the consequence is that our style is impoverished, and the noble old language of our forefathers drops out of use, while the minds of our young men are employed instead in stringing together scraps of Latin poets learned by heart, and making them into execrable hexameters. Then as for modern languages :—There is some feeble sort of attempt to teach them, but nothing effective; and yet surely, if English is to have a preference over modern languages, as it ought to have, modern languages ought to have a preference, as far as the practical affairs of life are concerned, over ancient languages. I have been with a party of half-a-dozen first-class Oxford gentlemen on the Continent, and not one spoke a word of French or German; and if the waiter had not been better educated than we, and known some other language than his own, we might all have starved. That is not nearly all, but that is enough. I think you will agree with me that, as Dr. Johnson said of the provisions of the Highland inn, the negative catalogue is very copious, and I therefore sum up what I have to say on this point by making this remark, that our education does not communicate to us knowledge, that it does not communicate to us the means of obtaining knowledge, and that it does not communicate to us the means of communicating knowledge.

These three capital deficiencies are undoubted; and what makes these so painful is the thought of the enormous quantities of things eminently worth knowing in this world. I have spoken only of modern history, of modern languages; but what are modern history and languages compared with the boundless field that nature opens out—with the new world which chemistry is expanding before us—with the old world that geology has called again into existence—with the wonderful generalization with regard to plants and animals, and all those noble studies and speculations which are the glory and distinction and life-blood of the time in which we live, and of which our youth remain, almost without exception, totally ignorant? It is not too much to say, that the man who becomes really well educated must begin his education after it has closed. After all had been done for him that the present miserable, contracted, and poor system can do, he has to begin and educate himself over again, with a feeling that he has wasted the best and most precious years of his life on things neither useless nor unprofitable in themselves, but which were the mere by-paths or appanages to the knowledge which constitutes the mental stock of a man of erudition.

Influence of Educational Endowments.

How are we to account for this phenomenon—how, with physical science in the state that it is, with such a history as ours, with such a literature as ours, with such a literature as that of modern Europe before us, we should turn aside from this rich banquet, and content ourselves with gnawing at mouldy crusts of speculations which have passed away upwards of two thousand years? How are we to account for this? It is easily accounted for. It is mainly the fault of educational endowments. When the educational endowments of Universities were made, there really existed no English literature. Modern history had not begun; mediæval history was only to be found in meagre annals of monkish chroniclers. Physical science was not in existence at all; and there really was nothing to direct the mind except Latin and Greek, and Aristotelian logic. No blame, therefore, attaches to those noble and philanthropic persons who made these foundations. The blame is in those who, after the immense expansion of knowledge, have not found means to expand the objects to which these endowments may apply in a similar proportion. Nor does any blame attach to our Universities, considered strictly as such—meaning by a University a body that ought to examine and test the advancement of its pupils; because our Universities do give examinations, and are willing, I am sure, to give them on any subject on which pupils can be found. But the blame lies with the Government of this country, because these endowments which are now exclusively given to Latin, Greek, and mathematics, are really, in my opinion, public property, for the use of which the State, as representing the public, is responsible. So long as they answer the end that endowments should answer, they should be let alone. When they do not, it is our business to reform them. Now what end do they answer? The end that they answer is this—they give an enormous bounty, an enormous premium, on the study of the dead languages, and of pure mathematics. Well, the studies of the dead languages, and of pure mathematics, are noble and valuable studies, and if that was all I would not object. But you know very well you can not give a premium to one study without discouraging another, and though their first effect is to give a premium to these studies, their collateral and far more important effect is to discourage, and, I would say, prevent, all those other studies which appear to me infinitely more worthy of a place in education. If a young man has talent, and is in want of money, as any young man is apt to be, and wants to turn his talent to advantage, suppose he devotes himself to physical science in Oxford, he can gain a first-class, whatever good that will do him. But there is hardly an endowment open to him; whereas, if he gave the same trouble to Latin and

Greek, he might be a Fellow of half a dozen different colleges with the most perfect ease. How can you expect these studies to get fair play, when they are so handicapped, when the whole weight of these endowments, amounting to about half a million annually, is thrown into the scale of the dead languages, and the study of pure mathematics? The fault lies, therefore, with the Government, which has not reformed these endowments; and the remedy, as it appears to me, is that these endowments should be emancipated from this narrow application, so that the emoluments that are to be obtained for learning, may be impartially distributed among all the branches of human knowledge—not proscribing the subjects to which I have alluded, but not giving them these invidious preferences over all the rest.

The same thing applies to our public schools. They are really adventure schools, kept by masters for their own profit. There is a foundation which forms the nucleus, and that foundation is generally for the purpose of teaching Latin and Greek, and that overrules and dominates the schools. The remedy is in the hands of parents; but these schools have got a good-will such as no other institution in the country has got. A man that has been at a school, however badly taught he has been, however much he has been flogged, always goes away with an affection for it. He forgets his troubles. It is a time that appears to us all very pleasant in the retrospect; and as these troubles are to be undergone not again by himself, but by his son, he always sends him there. No doubt, if we could only secure a fair stage and no favor for all the different branches of instruction, the thing would remedy itself. Do not misunderstand me. I do not think it is any part of the duty of Government to prescribe what people should learn, except in the case of the poor, where time is so limited that we must fix upon a few elementary subjects to get any thing done at all. I think it is the duty of the parents to fix what their children should learn. But then the State should stand impartial, and not by endowments necessarily force education into these channels, and leave those others dry. And, therefore, what I would press is, that somehow or other the endowments should be so recast as to give all subjects—physical science, modern history, English history, English law, ancient languages, ancient literature, ancient history, ancient philosophy, all a fair and equal start.

You will say, How is it possible for this to be done? I don't presume to say what is the best way of doing it, but I can tell you one way it can be done, because I have done it myself. I was Secretary to the India Board at the time when the writerships were thrown open to public competition. We had of course the problem to solve then, because if we had restricted them to Latin and Greek, of course we should have excluded a great number of very meritorious candidates—gentlemen, for instance, coming from the Scotch Universities, who, though very well versed in the philosophy of mind, and many other valuable studies, would not have been able to compete perhaps successfully in classics with boys trained in the English public schools. And therefore we had to attempt to do something of the kind that I have endeavored to point out to you as being necessary to do. In order to solve the problem of education, I, with the assistance of Lord Macaulay and other eminent men, prepared a scale which has since, with very little change, been the scale upon which these offices have been distributed; that is, we took every thing that we could think of that a well-educated man could learn. We took all the languages: we took nd Greek, we took French and English, and all the modern languages ope; we took the principal branches of physical science, we took history, h literature, philosophy of mind as taught in Scotland, and at Oxford, t other places; we took every thing, and we gave marks to each according o their relative importance, as near as we could arrive to it; and under system all persons have been admitted equally and fairly to the benefits of e offices, whatever their line of study may have been. Instead of loading dice in favor of the dead languages, we gave them all a fair start, and the ng, so far as I know, has worked perfectly smoothly and with perfect success. ow, I say something of that kind should be done if we are to reform endowents so as to place all studies on a level, and then let the best study win. I on't pretend to influence the decision of parents, but I should give to them o bribe, no inducement, to choose one study more than another, but allow them to take whatever they like best. And I think you would find that the public appetite for Latin verses, the difficult parts of Greek choruses, and the abstruser rules of grammar, such as are given in the Latin Primer recently issued for the use of public schools, would begin to abate; and the people would think it is better to know something of the world around them, something about the history of their own country, something about their own bodies and their own souls, than it is to devote themselves entirely to the study of the literature of the republics of Greece and Rome.

The time has gone past evidently when the higher classes can hope by any indirect influence, either of property or coercion of any kind, to direct the course of public affairs. Power has passed out of their hands, and what they do must be done by the influence of superior education and superior cultivation; by the influence of mind over mind—"the sign and signet of the Almighty to command," which never fails being recognized wherever it is truly tested. Well, then, gentlemen, how is this likely to be done? Is it by confining the attention of the sons of the wealthier classes of the country to the history of these old languages and those Pagan republics, of which working men never heard, with which they are never brought in contact in any of their affairs, and of which, from the necessity of the case, they know nothing? Is it not better that gentlemen should know the things which the working men know, only know them infinitely better in their principles and in their details, so that they may be able, in their intercourse and their commerce with them, to assert the superiority over them which greater intelligence and leisure is sure to give, and to conquer back by means of a wider and more enlightened cultivation some of the influence which they have lost by political change? I confess, for myself, that whenever I talk with an intelligent workman, so far from being able to assert any such superiority, I am always tormented with the conception, "What a fool a man must think me when he finds me, upon whose education thousands of pounds have been spent, utterly ignorant of the matters which experience teaches him, and which he naturally thinks every educated man ought to know." I think this ought easily to be managed. The lower classes ought to be educated to discharge the duties cast upon them. They should also be educated that they may appreciate and defer to a higher cultivation when they meet it; and the higher classes ought to be educated in a very different manner, in order that they may exhibit to the lower classes that higher education to which, if it were shown to them, they would bow down and defer.

WILLIAM EWART GLADSTONE.

William Ewart Gladstone was born in Liverpool Dec. 29, 1809, educated at Eton, and Christ Church, Oxford, where he graduated in 1829, taking a double class in 1831. After traveling on the continent, he was returned to Parliament in 1832, and was in 1834 made a junior Lord of the Treasury, and in 1835 under Secretary for Colonial Affairs, by Sir Robert Peel. In the same year he retired from office with his leader, and returned with him in 1841 as Vice-President of the Board of Trade, and Master of the Mint. In this capacity he gave the explanation required of the commercial policy of the government and of the revived tariff in 1842. In 1843 he was made President of the Board of Trade, and in 1846, succeeded Lord Stanley as Secretary of State for the Colonies. In the following year he resigned, and in a few months he was elected member of the House for the University of Oxford, and in 1852 became Chancellor of the Exchequer. In 1855 he was in Parliament but out of office, until 1859, when he resumed office as Chancellor of the Exchequer, assisted in negotiating the commercial treaty with France, and aided the Oxford University Commissioners. He was rejected as member from Oxford in 1865, but was immediately returned for South Lancashire, and after the death of Lord Palmerston became leader in the House of Commons and Chancellor of the Exchequer under Lord Russell's administration. In 1866 he brought in a Reform Bill, and again in 1868, when he was successful. As Premier after 1868 he signalized his ministry by disestablishing the Irish Church, and inaugurating a new system of land tenure in Ireland.

Mr. Gladstone has kept up his classical studies, for which he was eminent at Eton and Oxford, and published an elaborate work on Homer. He maintains the classical side of the question of a modern curriculum for secondary and superior schools.

Classical Training, the Basis of a Liberal Education.

The relation of pure science, natural science, modern languages, modern history, and the rest, to the old classical training, ought to be founded on a principle, and that these competing branches of instruction ought not to be treated simply as importunate creditors that take one shilling in the pound to-day because they hope to get another shilling to-morrow, and in the meantime have a recognition of their title. This recognition of title is just what I would refuse; I deny their right to a parallel or equal position; their true position is ancillary; and as ancillary it ought to be limited and restrained without scruple as much as a regard to the paramount matter of education may dictate. But why, after all, is the classical training paramount? Is it because we find it established?

cause it improves memory, or taste, or gives precision, or develops the faculty speech? All these are but partial and fragmentary statements, so many arrow glimpses of a great and comprehensive truth. That truth I take to be, that the modern European civilization from the middle age downwards is the compound of two great factors, the Christian religion for the spirit of man, and the Greek (and in a secondary degree the Roman) discipline for his mind and intellect. St. Paul is the Apostle of the Gentiles, and is in his own person a symbol of this great wedding. The place, for example, of Aristotle and Plato in Christian education is not arbitrary, nor in principle mutable. The materials of what we call classical training were prepared, and we have a right to say were advisedly and providentially prepared, in order that it might become, not a mere adjunct, but (in mathematical phrase) the complement of Christianity in its application to the culture of the human being, as a being formed both for this world and the world to come.

If this principle be true, it is broad, and high, and clear enough; and it supplies a key to all questions connected with the relation between the classical training of our youth, and all other branches of their secular education. It must of course be kept within its proper place, and duly limited as to things and persons. It can only apply in full to that small proportion of the youth of any country who are to become in the fullest sense educated. It involves no extravagant or inconvenient assumptions concerning those who are to be educated for trades and professions, in which the necessities of specific training must more or less limit general culture. It leaves open every question turning upon individual aptitudes and inaptitudes; and by no means requires that boys without a capacity for imbibing any of the spirit of classical culture are still to be mechanically plied with the instruments of it after their unfitness in the particular subject matter has become manifest. But it lays down the rule of education for those who have no internal and no external disqualification; and that rule becoming a fixed and central point in the system, becomes also the point around which all others may be grouped.

CLASSICAL SCHOLARSHIP.

DR. DONALDSON, in an Essay on Liberal Education in 1856, entitled *Classical Scholarship and Classical Learning, considered with especial reference to Competitive Tests and University Teaching,* takes strong ground in favor of maintaining the supremacy of classical studies in the public schools and universities, to the still further subordination of mathematical study, and to the assignment of instruction in the natural sciences to special schools.

If we confine ourselves to the province of the intellect, *Education* is properly a cultivation and development of those faculties, which all men have in common, though not all in the same degree of activity. *Information*, when it is nothing more, merely denotes an accumulation of stray particulars by means of the memory. On the other hand, *Knowledge* is information appropriated and thoroughly matured. We speak of knowledge of the world, knowledge of our profession or business, knowledge of ourselves, knowledge of our duties—all of which employ a completeness and maturity of habit and experience. And when knowledge extends to a methodical comprehension of general laws and principles, it is called *Science*. It is the natural and proper tendency of information to ripen into knowledge, just as knowledge itself is not complete until it is systematized into science. And as intellectual education necessarily presumes a certain increase in the information or acquired knowledge of the person under training, it is clear that, while the main object of education, namely, the gradual development of the faculties, should never be neglected, the information conveyed and the method of imparting it should be such as to lay the foundation and pave the way, for the superstructure of knowledge and science, in the case of those persons whose capacity and tastes render such an enlargement of the future field of study either probable or desirable. From this it follows, that the great object of education is utterly ignored by those teachers, who, when the mind is unformed and undisciplined, force upon the memory a crowd of unconnected and unprolific recollections, which can neither be digested nor retained, and which, if retained, produce no results on the healthy action of the understanding.

Even in cases, when this process is postponed beyond the period of earliest boyhood, even when it is adopted after a certain course of real mental discipline, its effects are prejudicial to the ripening mind, and unfavorable to the confirmation of those accurate habits without which information seldom settles into knowledge or rises into science. And it is always desirable that the process of liberal education should be carried on as long as possible, and that the acquirement of special knowledge, whether tending to science or applicable immediately to professional practice, should be postponed until the youth has accomplished more than half of the third septennium of his life. That periods of seven years constitute a real element in the life of man is acknowledged by the tacit consent or familiar language of all nations. At any rate, our own experiences teaches us that at seven years old the child passes into the boy, by a change of dentition; that at 14, the age of puberty is attained; at 21 the age of manhood; at 42 the age of maturity; and at 63—the grand climacteric as it is called—the period of senility. Such a subdivision presumes that while growth of body is completed at 20, strength of body must be reached, if at all, at 30, and strength of mind, when we have well passed 35, which Dante calls

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[*] JOHN WILLIAM DONALDSON, D. D., was born in London, June 10. 1811—was educated first at the University of London, then at Trinity College, Cambridge, where he stood second in the first class of the Mathematical Tripos, in 1834, and the year following was elected fellow. His first publication, *The Theater of the Greeks*, was issued in 1836, which was followed by *New Cratylus* in 1830, of which a new and enlarged edition was issued in 1859, and which, with his *Varronicanus* issued in 1844, ranked him with the great scholars of Germany. In 1840 he married the daughter of Sir Thomas Mortlock, and became head master of Bury St. Mary Grammar School. His edition of *Antigone* of Sophocles, of the Book of *Jashar*, of the Odes of *Pindar*, his *Greek* and *Latin School, Grammars* and *Greek Lexicon*, all show fine and accurate scholarship. He died February 10, 1861.

'the midway of our life.' And taking this view of the matter we might maintain with great confidence, that the education of the reasoning powers can not really terminate before the body has attained to maturity; that no man can be set free from the duty of forming and invigorating his mind before the period at which he reaches a full development of his material growth; that while his frame is still unformed his understanding can not have reached its completion, and that his intellect can not be perfect as an instrument of thought until nature has set the stamp of manly beauty on the young man's brow.

This necessity for a commensurate progress in mental and bodily growth, this presumption that accomplishment of the mind and beauty of person are attained at the same period, namely, when the boy has grown into a man, is involved in the language of that nation which understood better than any other wherein beauty consists, and by what means the graces and refinements of body and mind can best be imparted and secured. The Greeks had only one word to express personal beauty and mental accomplishment. The adjective καλός, in its primary sense, 'furnished with outward adornments' in general; that of which the outward form or the outward effects are pleasing and grateful. 'But,' as I have said elsewhere (*New Cratylus*, § 324), 'to the Greek idea of κάλλος something beyond mere outward garnishing of the person was required; it was not a languishing beauty, a listless though correct set of features, an enervated voluptuousness of figure, to which the homage of their admiration was paid. It was the grace and activity of motion, which the practice of gymnastic exercises was calculated to promote—the free step, the erect mien, the healthy glow, combined with the elegances of conversation and the possession of musical accomplishments; it was in fact the result of an union of the μουσική and γυμναστική of which their education was made up.' The name, which the Greeks gave to the process of making the mind and body both elegant or handsome or clever, implied that the business was not complete till a fullness of stature and a maturity of understanding had been attained. They called it παιδεία, or 'boy-training,' and the word also noted the period of life during which this bringing up or education was to be carried on.

With the Greeks, then, I believe that a liberal or general education—that which the Romans called *humanitas*, because the pursuit and discipline of science is given to man only of all the animals—ought to be carried on as long as the mind and body are still immature, that is, nearly till the twentieth year if possible; and while I believe with Plato that the boy-training, which alone is worthy of the name, is that which is pursued for its own sake without reference to extrinsic objects (*Legg.* I. p. 643 B), I think also that we import into the legitimate province of the teacher that which does not belong to it, when we crowd a mass of multifarious acquirements into the period allotted to the growth and improvement of our reasoning powers and our physical energies.

The true object of a liberal education is thus described by Döderlin:

'Even at the present day, one hear voices which tell us that the school forms a more appropriate preparation for the business of life when it encourages such employments as are most subservient to this, and most connected with it. For example, the medical man will be best trained by the earliest possible study of the physical sciences. But reason has prophesied, and experience has fulfilled the prediction, that this sort of education (the infallibility of which has always found the quickest acceptance with the most narrow-minded, and which appears to the most superficial the only road to an adequate training) is calculated only to debase every one of the more intellectual occupations to the rank of a better sort of trade. Accordingly, all public schools, unless they mistake their destination, hold this as an unassailable principle: that although a classical education presumes that all its pupils are designed for some intellectual employment, it does not trouble itself to inquire what particular sort of employment this is to be. The future physician and lawyer, as well as the future clergyman and teacher, essentially different as their contemplated employments may be, are trained precisely in the same manner, having regard only to that which they have in common, namely, that their ulterior occupation, whatever it may be, will demand the most practiced exercise of the intellectual faculties.

'It is the primary object of the education of classical schools to impart to the mind of every pupil a capacity for learning that business of which the Universities and other higher institutions profess to convey the definite teaching. The schoolmaster, therefore, is not deterred by the thought, that so much of the learning which he has, with great pains and infinite labor, conveyed to his scholars, and which they have acquired with no little exertion of their own, has been learned by many of them only to be forgotten sooner or later. As the sculptor, when he has finished his statue, does not hesitate to break up the model (the most troublesome part of his work), so the grown-up man does not forget or lay aside, what he was taught at school, until he has derived the full advantage from these studies. He may fail to recognize their unseen fruits, but he can not eradicate them: for his lessons have strengthened his mind in learning and thinking, just as his exercise in the playground braced and invigorated his body.'—*Reden und Aufsätze.*

And Frederic Jacobs has protested in language equally forcible.

'It has been repeatedly said, that it is of less consequence in youth what a man learns, than how he learns it, and that the saying of Hesiod, 'The half is often better than the whole,' admits of an application here. The heaping up of knowledge for the sake of knowledge brings no blessing; and all education, in which vanity bears the sceptre, misses its object. The young are not called upon to learn all that may by possibility be useful at some future period; for if so, as Aristotle facetiously remarks, we should have to descend to learning cookery; but only such particulars as excite a general activity of mind, sharpen the understanding, enliven the imagination, and produce a beneficial effect on the heart. Not only on grounds of science, but also, and especially, on moral grounds, it is more important to be master of one subject than to be superficially acquainted with many. Knowledge strengthens; superficial acquaintance with many branches of knowledge puffs up and produces a pedantic arrogance; and this is perhaps the most unhappy endowment which a youth can carry with him from school into the world. It is hated because it is illiberal. Illiberality, however, with regard to knowledge, always prevails in those who know neither its root nor its summit.'

To attempt to support by arguments a view of liberal education, which has been held by enlightened men from the days of Plato and Aristotle down to our time, would be only to waste words. And I shall consider myself entitled to start from the postulates, that, wherever it is possible, that is, in all cases which fall within the scope of University teaching, the discipline of the mind should be carried on to the end of the period of adolescence; that this discipline should be general and not professional; and that it should not consist in sciolism or a smattering of miscellaneous acquirements.

ENGLISH AND GERMAN SCHOLARSHIP COMPARED.

HAVING introduced into the exposition of the present drift of English opinion, on the relative value of studies in the curriculum for a modern liberal education—much that is relatively disparaging to English scholarship, we cite the following passages from an elaborate defense of English Classical Training by Dr. Donaldson.

In order, however, that I may confute the educational objectors on their own ground, and meet the invidious comparison with the Scholarship of Germany, to which they provoke us, I must inquire into the system of classical education pursued in that country, and I must examine the means which they possess of producing scholars, and the causes which create so large a number of writers on learned subjects. In such an inquiry it would not be fair to take as our text-books the biographical sketches of two scholars recently deceased—Godfrey Hermann, of Leipsig, the greatest Greek scholar among the modern Germans, who died on the last day of 1848, and Charles Lachmann, of Berlin, their greatest Latin scholar and general philologer, who died soon after, though at a much earlier age, on March 13, 1849. By selecting these two specimens of German scholarship we should indeed adduce the most favorable instances which could be found, but we should not exemplify the general character of the German philologer. For, in their activity of mind and body, Hermann and Lachmann came nearer to Englishmen than 99 out of 100 Germans; and both of them made more progress in classical composition than any *Gelehrten* of their time. In a word, Hermann and Lachmann deserved to be called scholars, and wanted nothing to give a perfect finish to those accomplishments for which nature had so well qualified them, except the advantages of an English education, and the competition of an English University. . . .

Let me, however, leave these exceptional cases of extraordinary men, and trace the ordinary career of one of the best class of German philologers. My imaginary *Bursch* shall have every advantage at starting. He shall not, like Heyne and Lobeck, be obliged to struggle with the inconveniences which result from the *res angusta domi*. His father shall be, if you please, a learned man and *Garnison-Prediger* in some great city, which contains a first-rate *Gymnasium*. His mother shall be the intelligent and accomplished daughter of a field-officer in the Prussian army. With such parents his education will commence at home, and he will not need the *Progymnasium* or preparatory school. I will suppose that he shows at an early age great docility and a considerable power of acquiring knowledge, and that in fact he promises from the first to be a *Philolog*. In due course of time he is sent to the *Gymnasium* or grammar-school of the place. If he enters at the age of eight or nine, he passes through all six classes of a school of some 150 boys. Here he not only learns Latin and Greek with some Hebrew, but is also instructed in his own language and French, and receives regular lessons in geography, history, mathematics, and natural philosophy. I am only concerned with his classical training, which will be best inferred from an account of his studies during his last year in the first class. He has read 450 lines of Homer's *Iliad*, half the *Œdipus Tyrannus* of Sophocles, and the *Euthyphro* of Plato: he has also been worked in Rost's Greek Grammar. In Latin he has read some odes of Horace and some Orations of Cicero, and has been exercised in the theory of Latin style both out of Zumpt's Grammar, and out of one of the numerous exercise-books which they have in Germany. He has done some of Vömel's Greek exercises; and has written Latin themes. But we hear nothing of his verse composition, except perhaps that he has volunteered some Latin Alcaics as the fruit of his private studies. Under the same head we find it recorded that he has read a good deal of Cicero and Livy, Horace's *Satires*, a little Plautus, some Homer, Xenophon, and Plato. And so, at the age of 16 or 17, he is sent to the University with some such character as this: "Egregie institutus, post examen publicum multa cum laude dimissus, Academiam Bonnensem petiit, philologorum studiis deditus." As this is the only real training, *as a scholar*, which our young philologer will have, it is worth while to inquire what it amounts to. He has acquired the faculty of writing tolerable Latin prose, and it must be admitted that the Germans generally surpass us in this; nor is the fact surprising, when we recollect that the Universities keep up, as we shall see, a practical demand for the accomplishment. In Latin verse, however, he has had no experience, and has probably never written a line of metrical Greek. Indeed his knowledge of quantity is very uncertain, and as in some *Gymnasiums* they are taught to pronounce Greek by the accent, the longs and shorts are as often wrong as right. The manner in which our student has read the few classical authors with which he is acquainted, depends on the abilities and scholarship of his Rector, and it is to be remarked that in Germany nearly all the really good scholars remain settled as Professors at the Universities, and are not, as with us, as frequently found at the head of the public schools. If our young philologer has not received a scholarlike training at school, he will hardly make good his deficiencies at the University. He will there have the option of attending a great number of lectures, *publice*, *privatim*, and *privatissime*, when his occupation will be writing down for an hour at a time the dictations of the Professor. There will probably be a *Seminarium Philologicum*, in which some Professor will exercise a class in Latin writing and disputation, or preside at discussions on the text and interpretation of the classical writers. The whole curriculum is calculated to stimulate and assist private study, to give systematic information on the pet subjects of the leading Professors, and to prepare a young man for the profession or trade of learned book-making. After some years spent in this way, and perhaps diversified by occasional employment as a private tutor, he takes his degree as "Doctor in Philosophy" by a public disputation on certain theses appended to a Latin dissertation on some philological subject, which, if he is really an original man, may contain the germ of his future literary labors. If his first effort is favorably received, he is at once launched as a teacher and writer of books. He must print something to obtain his *Habilitation*, and he must go on writing if he wishes to rise from the *Privat-docent* to the *Professor Extra Ordinem*, and so to ascend to the ordinary or regular Professorship. Nor can his pen be allowed to rest even when he has obtained this ultimate object of his ambition. He must publish books to keep his name before the world and attract pupils to his lecture-room. And so from first to last he is a book-maker *ex rei necessitate*. He acquires knowledge, not as a labor of love from the improvement of his own mind, but as fuel for his reputation and ammunition for his literary artillery.

While then the system of education pursued in Germany is less calculated than our own to produce finished scholars, the mode prescribed for the attainment of Professorships and the other educational positions, which abound in that country, furnishes a demand for literary production, which must lead to a vast amount of needless book-making. The cases of Dr. Parr and Professor Dobree, with others that might be named, show that in England a reputation for sholarship may exist independently of literary production, and even without reference to the test of University distinctions. This results from the diffusion of scholarlike acquirements in general society, and from the voice of general opinion, which connects the separate links of private circles. In Germany, this social influence of scholarship is non-existent. It is only as a *Gelehrte*, or writer on learned subjects, that a philological student can become distinguished; and thus in the two countries the amount of scholarship and the number of learned books stand in a reciprocal ratio. Though there can be no doubt that the German habit of book-making leads many men to write who have no real vocation for authorship, and thus deteriorates the learned literature of the country, it can not be denied on the other hand that the facilities afforded for literary production have also their advantages. In this way, we are less likely to be deprived of the services of the few men in every age who are competent to instruct the world on these subjects. . . .

There can be no doubt that nearly all our best writers on classical literature for the last 20 years have been familiar with the philology of the Germans, and have derived great benefit from this widening of the field of contemporary knowledge, a benefit from which the Germans too often exclude themselves. And even those of our scholars, who are unacquainted with the German language, have been enabled, by means of translations, to read and appropriate the best books on learned subjects which the Germans have produced. There has been in fact a reaction since the termination of the last European war. We paid too little attention to German learning before that time; we now run into the opposite extreme, and seem to think that there is no learning out of Germany. We forget in point of fact that classical education has been so long established in England, and has produced such influence on the tastes, habits and character of Englishmen, that even when eminent writers on learned subjects, like Colonel Mure and Mr. Kenrick, are indebted to the Germans, not only for a good deal of the materials of their learning, but also for a part of their education, they remain to the end distinguished by that knowledge of the world, acquaintance with political science, practical good sense, and facility of expression, which seem to be the essential property of our countrymen, and are too generally wanting in German writers. It would have been eminently absurd, if we had not placed our mathematical studies on the advanced basis of the improved calculus, and had neglected the works of Lagrange and Laplace: but no one imagines that the countrymen of Herschel, Babbage, Adams, Rowan Hamilton, Hinds, Stokes, Hopkins, and Airy are inferior in mathematical knowledge to the teachers of the *École Polytechnique*. Why is this the case in regard to German philology? Why may we not take cognizance of Niebuhr, Böckh and Müller, without seeming to relinquish our own claim to rank as their equals? If this were the rule for our guidance in estimating the literary merits of a particular nation at a particular time, we must, on the same principle, consider the Germans, whose works have been most immediately suggestive to us of late years, as mere offshoots of an English school of philology, previously existing. For Niebuhr himself has pronounced F. A. Wolf 'the hero and eponymus of the race of German philologers,' and it is universally admitted that Wolf was a literary representative of Bentley. Indeed, a German writer, who claims all that he can for his countrymen, has not hesitated to avow, that historical philology, though it is the heritage and the glory of German scholars, was the discovery of Richard Bentley, and the dissertation on Phalaris must take rank before all the constructive or reconstructive efforts of continental criticism. Our greatest obligation to modern German scholarship is the revival among us of the spirit of Bentley; in this, no doubt, we have been stimulated by the example of the great German scholars—Wolf, Böckh, Niebuhr, C. O. Müller, Hermann, Lachmann, and others—who have declared themselves his disciples. And the general tone of German literature, which, revived by Lessing, reached its culminating point in Göethe, has produced a marked influence on Englishmen of the largest minds and clearest discernment. But if we try to trace backwards the mutual obligations of the two countries, we shall always find the first entry to the credit of England.

COMPETITIVE EXAMINATION FOR CIVIL SERVICE APPOINTMENTS.

The Report of the Commission of which T. B. Macaulay was chairman, and the author, on the East India Civil Service, in December, 1854, constitutes an epoch in the educational history of England. It maintains the principle, that the education which is to prepare young men for the higher business of life, must begin with a general discipline of the intellect, and that a special or professional training ought to be reserved until the process has been brought to some satisfactory stage, or landing-place. Dr. Donaldson cites the following passages as in harmony with his own views:

'We believe that men who have been engaged up to 21 or 22, in studies which have no immediate connection with the business of any profession, and of which the effect is merely to open, to invigorate, and to enrich the mind, will generally be found, in the business of every profession, superior to men who have, at 18 or 19, devoted themselves to the special studies of their calling. The most illustrious English jurists have been men, who have never opened a law-book till after the close of a distinguished academical career; nor is there any reason to believe that they would have been greater lawyers, if they had passed in drawing pleas and conveyances the time which they gave to *Thucydides*, to *Cicero*, and to *Newton*.'

Of the Mathematical portion of the examination they say:—

'We think it important that not only the acquirements, but also the mental powers and resources of the competitors should be brought to the test.'

Speaking of the Moral Sciences, as included in the scheme, they remark:—

'Whether this study shall have to do with mere words or things, whether it shall degenerate into a formal and scholastic pedantry, or shall train the mind for the highest purposes of active life, will depend, to a great extent, on the way in which the examination is conducted. . . . The object of the examiners should be rather to put to the test the candidate's powers of mind than to ascertain the extent of his metaphysical reading.'

With the same reference to the immediate objects of a competitive test, they recommend that eminence in classical composition should have a considerable share in determining the issue of the competition:—

'Skill in Greek and Latin versification has, indeed, no direct tendency to form a judge, a financier, or a diplomatist. But the youth who does best what all the ablest and most ambitious youths about him are trying to do well, will generally prove a superior man; nor can we doubt that an accomplishment, by which Fox and Canning, Grenville and Wellesley, Mansfield and Tenterden first distinguished themselves above their fellows, indicates powers of mind which, properly trained and directed, may do great service to the state.'

And with regard to the Examination in general they observe with truth:—

'Experience justifies us in pronouncing with entire confidence that, if the examiners be well chosen, it is utterly impossible that the delusive show of knowledge, which is the effect of the process popularly called cramming, can ever be successful against real learning and ability.'

It is clear, from these explicit statements of their views, that the able and eminent persons, who framed the scheme for the civil service examination, had no wish to send out to India clever smatterers, feeble bookworms, scholastic pedants, and one-sided mathematicians; but to select the most energetic and vigorous young men from the crowds who were likely to offer themselves as candidates for a share in the administration of our most important Satrapies. The particular kind of knowledge, which would be most serviceable to them in the presidencies, was to be prescribed to those selected by the first test, and this subsequent course of study was to be stimulated by a second examination. But, for the preparatory selection, it was only necessary to test existing methods of education, and to discover the best men they could produce. The reasonableness of this procedure was manifest. On the one hand, as the candidates would come from schools and colleges, which had long pursued fixed systems of instruction, differing in different parts of the country, it was necessary that the touchstone should be applied fairly to them all. On the other hand as only a limited number of the candidates could be successful, it was essential that the whole body of applicants should not be drawn away from their general studies by specialties, which might be of little or no use to those who would not ultimately proceed to India. But, independently of these considerations, suggested by the distinctive peculiarities of the appointments themselves and the means of filling them, the framers of the scheme of examination could not but foresee that such an object of competition would soon produce an effect on the educational system of the whole country, and that teachers would address themselves to the immediate preparation of candidates. They, therefore, wisely laid down some general principles, applicable to the future no less than to the present. They have declared unreservedly that they want the fruits of real mental discipline, that they desire habits of exact thought, and not a wide range of diversified information; and thus they give their adhesion to the old rather than to the new form of education, and would prefer the solid groundwork of the old school of arts rather than the showy stucco-work of modern sciolism. They indicate that, up to a certain time of life, it is of much less consequence what we read than how we read it; and that the young man, who would prepare himself for future distinction, must be frequently less anxious to advance than to know the route which he has already traversed. The student, who is worthy of the name, must be willing to acquiesce in those teachers, who, in the older universities, were called *repetents* —a sort of intellectual drill-sergeants; he must often remind himself of the words of the Platonic Socrates: 'Perhaps it would not be amiss to go over this ground again; for it is better to accomplish a little thoroughly, than a great deal insufficiently.' In the words of a modern philosopher (Hamilton), he will thus learn that 'as the end of study is not merely to compass the knowledge of facts, but, in and from that knowledge, to lay up the materials of speculation; so it is not the quantity read, but the degree of reading which affords a profitable exercise to the student. Thus it is far more improving to read one good book ten times, than to read ten good books once; and *non multa sed multum*, 'not much, perhaps, but accurate,' has, from ancient times, obtained the authority of an axiom in education, from all who had any title to express an opinion on the subject.'

Adopting these principles and thus confining the competitive test to the results of a liberal or general education, these exponents of the newest demands upon intellectual culture have not only given the most important place to the old basis of instruction, namely, classics and mathematics, but have even declared their preference for the more old fashioned of these two departments of study. For while mathematics have only 1,000 marks assigned as the maximum of credit, 1,500 marks are allotted to Greek and Latin. And thus in our newest educational stimulus we have, as in our oldest academical institutions, a premium for the cultivation of classical scholarship even as compared with mathematical science.

CLASSICAL INSTRUCTION:—ITS USE AND ABUSE.

UNDER the above title Dr. Hodgson issued, in 1854, a pamphlet of 70 pages, an essay, originally published in the Westminster Review for October, 1853, which attracted much attention at the time, and contains in its reasonings and citations food for thought, until the abuse of what Sidney Smith calls *Too much Latin and Greek* for all pupils of liberal culture, is utterly eradicated from the enforced curriculum of a majority of children who have useful work of any kind to do in this world. It is as true now in England, as it was when first uttered by Sidney Smith in the Edinburgh Review in 1809, and again by Lord Ashburton in 1853.

The complaints we have to make are, at least, as old as the time of Locke and Dr. Samuel Clarke; and the evil which is the subject of these complaints, has certainly rather increased than diminished since the period of those two great men. A hundred years, to be sure, is a very little time for the duration of a national error; and it is so far from being reasonable to look for its decay at so short a date, that it can hardly be expected, within such limits, to have displayed the full bloom of its imbecility.

SIDNEY SMITH.

In this *progressive* country, we neglect all that knowledge in which there is progress, to devote ourselves to those branches in which we are scarcely, if at all, superior to our ancestors. In this *practical* country, the knowledge of all that gives power over nature, is left to be picked up by chance on a man's way through life. In this *religious* country, the knowledge of God's works forms no part of the education of the people,—no part even of the accomplishments of a gentleman.

LORD ASHBURTON.

PROF. BLACKIE of Edinburgh is cited thus:

'I claim for the ancients no faultless excellence, no immeasurable superiority. The raptures which some people seem to feel in perusing Homer and Virgil, Livy and Tacitus, while they turn over the pages of Shakspeare and Milton, Hume and Robertson, with coldness and indifference, I hold to be either pure affectation, or gross self-delusion; being fully satisfied that we are in no want of models in our own English tongue, which, for depth of thought, soundness of reasoning, for truth of narrative, and what has been called the philosophy of history, *nay, even for poetical beauty, tenderness, and sublimity*, may fairly challenge comparison with the most renowned productions of antiquity.'

In truth, it is not merely in general literary beauty, or in the 'romantic' graces, that modern literature may court the severest comparison with the ancient. Even in the charmed circle of 'classic' inspiration itself, more of the divine *aura* is to be caught from such poems as the 'Laodamia" of Wordsworth, the 'Endymion' of Keats, the 'Orion' of Horne, the 'Œnone' and 'Lotos Eaters' of Tennyson, the 'Dead Pan' of Mrs. Browning, than is ever dreamed of by many a laborious searcher of lexicons and collator of various readings in 'classic' texts. If the 'Andromache' of Racine, and the 'Cinna' of Corneille, be thought by any to be more French than Greek or Roman; of Göethe it has been said that he was more Hellenic than Teutonic, less Christian than pagan. There is much truth, as well as beauty, in the words of Professor Blackie: 'Milton, who learned from Homer, has become a Homer to us; and not to us only, but to the right-minded of the whole Christian world, he stands where Virgil stood in reference to Dante, and much more fitly. Many persons there are, in these days, who assert that the famous chorus of Aristophanes, descriptive of the clouds (ἀέναοι νεφέλαι, &c.), is a poor specimen of the poetic art compared with Shelley's Ode on the same subject; that John Keats, in his 'Hyperion,' sees deeper—certainly with a more tender clearness and a severer purity—into the soul of Greek mythology, than Bœotian Hesiod did in his 'Theogony;' and that Roman Horace is but a dull singer in presence of the sparkling Moore, and the combination of nice artistic touch with the most subtle and delicate sentiment in Tennyson.'

ASSOCIATIONS OF SCHOOL-DRUDGERY WITH TEACHERS AND AUTHORS.

Dr. Hodgson cites high authorities in confirmation of the assertion of Prof. Blackie: "Persons are often sent to study the classical languages, and to read the works of the highest classics, at an age when it is impossible even for clever boys to read them with intelligence and sympathy." Southey, Scott, Byron, Coleridge, and other men of poetic genius, have recorded their inability in after-life to divest the ancient classics of the associations of ennui, satiety, and disgust, caused by their premature study. To the schoolboy it is the sting, and not the honey, that proclaims the attic bee.

If the dead have any cognizance of posthumous fame, one would think it must abate somewhat of the pleasure with which Virgil and Ovid regard their earthly immortality, when they see to what base purposes their productions are applied. That their verses should be administered to boys in regular doses, as lessons or impositions, and some dim conception of their meaning whipt into the tail when it has failed to penetrate the head, can not be just the sort of homage to their genius which they anticipated, or desired.

SOUTHEY.—*The Doctor.*

These boys have been dragged through grammar as through a cactus bush. They know all about τυπτω; Delectus they were taught to find a choice of evils, and the Anabasis a-going down into some lower deep. They had learned to wish that Homer's works were in a single copy, and so fell into their claws; they knew what they would do, though they got flogged for it. They are now translating Philoctetes, wondering when Ulysses will be done with, for they are reading about him also with the French usher in 'Télémaque.' As for the son of Poias the Melian, all they can make out is a connection between his sore foot and their sore hands. To this extent, perhaps, they recognize his claim to sympathy on their part, and also they can understand his hatred of Ulysses. Philoctetes agrees with the boys thoroughly about that, for Ulysses is the man,

'Whom of all other Greeks he would desire
To lay his fist upon.'

The Greeks fight a hard battle, and retire to suck their wounds.

A Defense of Ignorance.

The flowers of classic genius with which the teacher's solitary fancy is most gratified, have been rendered degraded in his imagination by their connection with tears, with errors, and with punishments; so that the Eclogues of Virgil and Odes of Horace are each inseparably allied in association with the sullen figure and monotonous recitation of some blubbering schoolboy.

SIR WALTER SCOTT.—*Old Mortality.*

I abhorr'd
Too much, to conquer for the poet's sake,
The drill'd dull lesson, forced down word by word
In my repugnant youth, with pleasure to record
Aught that recalls the daily drug which turned
My sickening memory; and though Time hath taught
My mind to meditate what then it learned,

Yet such the fixed inveteracy wrought
By the impatience of my early thought,
That, with the freshness wearing out before
My mind could relish what it might have sought,
If free to choose, I can not now restore
Its health; but what it then detested still abhor.

BYRON'S *Childe Harold.*

Byron adds, in a note—'I wish to express, that we become tired of the task before we can comprehend the beauty; that we learn by rote before we can get by heart; that the freshness is worn away, and the future pleasure and advantage deadened and destroyed, by the didactic anticipation, at an age when we can neither feel nor understand the power of compositions which it requires an acquaintance with life, as well as Latin and Greek, to relish, or to reason upon.'

Dr. Hodgson solves the problem—how to introduce more of modern languages and physical sciences into the school, which is at once disciplinary, and preparatory in knowledge for the old universities, and for the new higher institutions which are rising to meet the demands of modern life; (1,) by beginning the classical course later in life, and thus allowing time for a good groundwork in English reading, spelling, and writing, the geography and history of the country, the principal practical points in mathematics and grammar, and an appreciation of music, drawing, and poetry; (2,) by beginning the study of either French or German before Latin, inasmuch as their utility in the intercourse of life, the wealth (large and still growing) of literature which they contain, their etymological relationship to the mother tongue entitle them to this precedence. The experience and opinion of Dr. Franklin is cited in favor of this course, as well of Dr. Jerrard, formerly classical lecturer at Cambridge, and later, principal of Bristol College, and classical examiner at the London University. "My experience in Bristol college has convinced me, that twelve or even fourteen would be better than eight or ten, to commence Latin. The technical grammar, required now of very young pupils, is too burdensome and repulsive. Unless the pronunciation of a modern language is fixed early, it is always defective, and discourages the practice of speaking—the want of which is now universally felt." To exclude either the ancient or modern tongues with their literatures, will leave the curriculum of liberal study incomplete; still each must take its place according to its relative importance in this age. If comparison must be instituted, we maintain that there is no advantage, intellectual, moral or æsthetic, that the study of the ancient languages can confer, which may not be derived to an almost equal degree, from the modern, while the modern yield peculiar advantages, to which the ancient can make no claim.

STUDY OF LANGUAGE IN MENTAL DISCIPLINE.

Rev. James Martineau, in his Inaugural Lecture in University Hall, London, indicates the place which language holds in a system of liberal studies.

"And among those central studies," (*i. e.*, the literary, which hold the middle ground between the outward and the inward, between the physical sciences and metaphysics) "it is easy to see why *language* occupies the very focal place, and has been justly recognized as supplying the faculties with their most effective discipline. For here the equipoise between external attention and internal reflection is maintained more perfectly than is possible elsewhere. Who can say whether language is an outer or an inner fact? It is evidently both. As a realized object of sense, transmitted from point to point of space, and recorded from age to age of time, it is manifestly external, and spreads its relations visibly before the eye, and lies open, like any material product of physical nature, to the simultaneous notice of innumerable observers. On the other hand, as the mere passage of thought and feeling out of silence, the direct out-come of our intellectual and spiritual life, it is a primary function of the inner mind, the mere incarnation (so to speak) of our highest energy. Accordingly, it has no significance, it is not an object of study at all, except on the condition of self knowledge; its distinctions, its classifications, its shades of relations, its forms of structure, are the very distinctions, and classifications, and relations, and architecture of thought itself; and whoever engages himself with them does but see his own intelligence externalized. Dealing with a fact of physical nature, you have to collect or guess its place and meaning in the system of things from its grouping or its look; but in handling the phenomena of language, you invert the proceeding, and carry into it from your own consciousness the idea that gives it shape; having the essence at home, you interpret by it the foreign form. I believe it is this necessary action and re-action of acute observation and thoughtful reflection, to which a philological discipline owes its peculiar advantage for training the faculties with less distortion than any other single pursuit."

PHYSICAL SCIENCES AND CLASSICAL STUDIES.

Prof. H. H. Vaughan, Regius Professor of Modern History in the University of Oxford, in the discussions which grew out of the Examination and Report of Royal Commissioners on the Studies of Oxford and Cambridge, published a pamphlet entitled "*Oxford Reform*," from which we make brief extracts.

"Dr. Pusey insinuates or states of these subjects (the physical sciences, which require the aid of the eye) that they only convey information of facts to the general student, and therefore that they have not been made a subject of general study. The main proposition and the historical inference drawn from it, are both, I conceive, incorrect. The thoughtless and superficial learner will make any instruction whatsoever mere matter of information at the best: and certainly, for such as these, the physical sciences do offer this peculiar advantage, that the information given is, in some sense, real; whereas, in more abstract sciences—Grammar and Logic, or History—the careless or dull receive little but words. When the eye dwells upon an object, it catches some of the properties of the object, at least; when, on the other hand, the word, which is the mere symbol of an object, falls upon the ear, the mind may be vacant of every thing whatsoever, beyond the sounds of the syllables. True it is, therefore, that physical sciences give information more easily, naturally, and therefore more efficiently to the languid student than any other can. But not on that account does such knowledge impart nothing but information. The vital appropriation and application of it involve acts of memory, comprehension, comparison, imagination, deduction; they involve the use of many and admirable faculties, the exercise of which is a discipline truly noble. The intelligent comprehension of a single compound substance, and the laws under which it is combined; the intelligent comprehension of the action of one compound on another, under the various given conditions of light, temperature, and electric forces, are quite elementary acts of mind to the earnest student, but may enforce the use of many admirable and useful mental powers. I do not presume to measure how old or how general is the doctrine, that natural science is mere information. But such a view is in itself a proof that opinions may be both trite and incorrect; and it should appear nowhere any longer save in some historical museum which shall preserve the history of prejudice or pretext. Nor do I believe that the absence or neglect of physical science as a subject of general study is practically owing to this impression, so much as to the joint operation of two other causes. The first of these is, that our general education is traditional, and has been handed down (subject to some slight modification by new ideas and convictions) from times in which physical sciences had no definite and acknowledged existence. At such a period they could not possibly form a part of general education; and when we reflect that men commonly learn but what they have been taught, and teach what they have learned, we can fully understand how it is that changes have not been made in the common subjects or method of instruction, and how it is, therefore, that classical language once established as the instruments and matter of education, have thus long remained so. A second reason is, perhaps, to be found in the fact, that the sciences spoken of are disliked by the jealous teachers of other branches of knowledge, and feared by many, either anxious to preserve the whole body of accepted traditions on all subjects, or fearful lest knowledge, unknown to ancient times, should shake the absolute authority or the traditional interpretation of ancient writings." * * *

"I cannot assign that very great practical effect to the actual study of languages, as a means of giving a discipline to the mind, which many claim for them. I conceive that such advocates have before them some ideal, possible, and occasional method of study, not the actual and general cultivation of language as it is realized. Most men begin to learn grammar through the dead languages (and surely they are the finest instruments for the purpose), before the powers of reflection are nearly strong enough to master and appropriate its principles, which are of a nature highly abstract. Rules, therefore, are learned by the ear and by rote, without any digestion of the understanding: a habit is generated of accepting and using words without an insight into their meaning, and of applying principles in practice without a thought of their real nature. This applies to the industrious. Meanwhile sixty out of a hundred boys learn carelessly or not at all; and I believe there is no study which could prove more successful in producing often through idleness and vacancy of mind, parrot repetition, and sing-song knowledge,—to the abeyance and destruction of the intellectual powers,—as well as to the loss and paralysis of the outward senses,—than our traditional study and idolatry of language. Thinking as highly as a rational being can of the discipline which may be given to good natural faculties, well ripened, by linguistic studies, I protest against the one assumption—not uncommon—that no other studies could administer a discipline to the reason; or the other assumption, hardly less general, that all the mental gifts have, in most cases, been cultivated and fully developed through this."

THOROUGH KNOWLEDGE OF THE SUBJECT, AND HABITS OF MIND.

Professor A. De Morgan, in a Lecture at University College, London, remarks:—

There is in every branch of knowledge a beginning, a middle, and an end; a beginning, in which the student is striving with new and difficult principles, and in which he is relying in a great measure on the authority of his instructor; a middle, in which he has gained some confidence in his own knowledge, and some power of applying his first principles. He is now in a state of danger, so far as the estimate which he is likely to form of himself is concerned. He has as yet no reason to suppose that his career can be checked—nothing to humble the high notion which he will entertain of himself, his teachers, and his subject. Let him only proceed, and he will come to what I have called the end of the subject, and will begin to see that there is, if not a boundary, yet the commencement of a region which has not been tracked and surveyed, and in which not all the skill which he has acquired in voyaging by the chart will save him from losing his way. It is at this period of his career that he will begin to form a true opinion of his own mind, which, I fully believe, is not done by many persons, simply because they have never been allowed to pursue any branch of inquiry to the extent which is necessary to show them where their power ends.

The powers which we expect to give by liberal education, or at least a very considerable portion of the whole, may be comprised under two heads, which I will take separately.

Firstly, it is one of the most important points of education that the subject of it should be made a *good learner*. What is it that can be done before the age of twenty-one, either at school or college? Is the education then finished? Is the pupil to pursue no branch of study further? Nay, does not a professional career open upon him immediately? He is thrown upon the world to learn, with the resources of his education to rely on, and little other help; for it is well known that, throughout our different plans of professional education, there is found but a small amount of teaching, with free permission for the aspirant to teach himself. Now, in this new career there is no stopping half way, in accordance with a previous system of education, in which many subjects were only half taught. The lawyer or physician must be a finished lawyer or physician, able to investigate his subjects at the boundaries of knowledge, and to carry his previous studies successfully up to that point. So soon as either has arrived at the height where his education left him, as to the species of mental effort requisite to carry on his subject, from that moment his future professional study becomes, in point of fact, an awkward substitute for the education which his former teachers professed to supply. He must apply himself with pain to an isolated subject, under great difficulties and with small helps, to gain that power which might so much more easily have been gained when the mind was more supple, and formation of habits more easy.

Secondly, among the educated classes we find those who can readily combine the ideas which they possess, and can turn their previous acquirements to the original consideration of such questions as arise; and we also find those who are slow at such exercise, or almost altogether incapable of it.

That the faculty of thinking easily, and originating thought, should be carefully cultivated, needs not to be maintained; and it cannot be effectively done without a considerable degree of attention paid to the method of thinking which is chosen.

He must go through the elements, during which he will find neither the materials for his original investigations, nor power to pursue them. He must first patiently collect knowledge, and the power of application will come by very slow degrees, and will not be in that state of activity which will answer the purpose, until something more than mere elements is effectively learnt. Considerations of the same character apply to every department of knowledge: there is a lower stage in which the pupil can do little more than collect; there is a higher state of knowledge in which he can begin effectively to apply thought to his collected stores, and thus make them help him to useful habits of mind.

Generally speaking, correctness in any branch of knowledge is a result only of much study. However simple the subject may be, however absurd the only possible mistake may be, I believe it may be taken as an axiom that the beginner is always inaccurate, and remains subject to this defect until he has acquired something more than elements. It has always appeared to me that the value of accuracy does not begin to be soon felt, and that it is only when the student has something of considerable extent to look back upon, that he begins to understand how much depends upon correctness. The same may be said as to lucid arrangement, of which it is clear that the learner will never see the value, until he has a considerable quantity of matter on which to employ himself.

A small quantity of learning quickly evaporates from a mind which never held any learning except in small quantities; and the intellectual philosopher can perhaps explain the following phenomenon,—that men who have given deep attention to one or more liberal studies, can learn to the end of their lives, and are able to retain and apply very small quantities of other kinds of knowledge; while those who have never learnt much of any one thing, seldom acquire new knowledge after they attain to years of maturity, and frequently lose the greater part of that which they once possessed.

SCIENTIFIC EDUCATION, MATHEMATICS, PHYSICAL SCIENCES.

George Bedell Airy, Astronomer Royal, and Fellow of the Royal Society, in his evidence before the Public Schools Commission in 1862, in answer to questions, replied as follows:

The effect of the scientific education at the universities depends in a great measure on the character of the examiners. At the University of Cambridge, which is the only one with which I can profess to be acquainted, the great scientific subject is mathematics in its various applications, and the examiners are for the *most* part Masters of Arts who have just taken their degrees, and who are put forward at their own wish and through the interest of their respective colleges, as proper persons to be mathematical examiners.

I should like very well that freshmen should have a good deal of what may be called the mechanism of mathematics, and in that I would include algebra generally; but with regard to the demonstrative mathematics I should require the most moderate amount, because I do not think it could be taken up with great advantage till a later period of time; but the study of algebra opens the mind, and the mechanical part could be learned by a boy very well.

I am in the habit of receiving at the Observatory supernumerary computors. They are for the most part the sons of tradesmen in the neighborhood; boys whom I engage at a low rate of payment, and whose parents are very glad to send them to the Observatory for the acquirement of habits of order and so on. I have instituted an examination for these boys,—not a competitive examination, which I tried once or twice, and of which I am effectually sickened, but an examination of efficiency, and I found only two or three days ago, when I examined one of the boys of the age of fifteen, that he mastered algebra very well indeed to the extent of which I have spoken.

There are things with which boys might acquire some familiarity, and which do not involve a strain on the mind, but which would be valuable to them in after life. I remember when I was a school boy learning several things which I did not trouble myself much about at the time, but from which I got ideas which have been extremely useful to me ever since. I remember when I was under a writing master in our school that he would make me go through a course of book-keeping by double entry. I did not care about it, but still I got enough instruction to remember it and to acquire the logic of it, and it has been of infinite value to me since. Now I never cared for that at the time I was at school, and I may say the same in respect to chemistry and electricity, as to their being extremely useful to me. I learned a little in reference to electricity. I cannot say how, but that little has been of great value to me. I mention this to show that knowledge acquired at that age, although not the subject of intense or well ordered study, does prove advantageous afterwards.

In public schools the general tone should undoubtedly be classical; but with the elements of mathematical education, I think there might be added a considerable knowledge of the less severe kind of physical sciences. And with advancing years, as during the years spent at the Universities, I think it very important that sound demonstrative mathematics, with a strong tendency to applied science, should constitute a large part of the education. I think it most desirable that the college course should not be a mere continuation of the school course.

MICHAEL FARADAY.

MICHAEL FARADAY, the son of a blacksmith in Newington Butts, was born September 24, 1791. At the age of 13, after such rudimentary instruction as the father's limited means could secure, he was apprenticed to a bookbinder and stationer, when in looking through the volumes sent to be bound, the boy's attention was attracted, among other subjects, to Electricity, and to apply his knowledge he converted a medicine phial to the purposes of a Leyden jar, and thus began his experiments in a field of science in which he afterwards won his brightest laurels. His bias to science gave him an aversion to trade, when being presented with a ticket by Mr. Dance to the four closing lectures of Prof. Davy (not then Sir Humphrey), in his course for 1812, in the Royal Institution. These lectures decided his career. Writing out his notes, he forwarded them with a letter to the lecturer, setting forth his desire to continue his studies in that direction. An encouraging answer was returned, which was followed soon after by the tender of the position of assistant in his laboratory. In the year following he accompanied the professor to Paris, Montpelleir, Genoa, Rome, and Naples, at all of which places he met men of science, and saw new experiments made in the best laboratories of Europe. On his return, in 1815, he applied himself diligently to the work of the laboratory, where he continued as a subordinate and assistant till 1826, when he became Lecturer on Chemistry in the Chair established by Mr. Fuller. In 1821 he obtained new views of electro-magnetism and electro-chemistry, which he followed out for a series of years, and on the results of these researches his fame principally rests. In 1823 he was elected corresponding member of the *Académie des Sciences* of Paris, and in 1844 one of the eight foreign associates; in 1846 he received the Rumford Medal and the Royal Medal; in 1832 Oxford conferred the degree of Civil Law (D.C.L.), and in 1830 he was made Fellow of the Royal Society (F.R.S.). In 1835 he received from Lord Melbourne's government a pension of £300; in 1836 he was appointed Scientific Advisor to the Trinity House, and subsequently, to the Board of Trade; and from 1829 to 1842, he was chemical lecturer at the Royal Military Academy at Woolwich. With opportunities to become rich by the commercial value of this scientific work, Faraday deliberately declined them, and stuck to his laboratory and study, with an

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OBSERVATIONS ON MENTAL EDUCATION.

If the term education may be understood in so large a sense as to include all that belongs to the improvement of the mind, either by the acquisition of the knowledge of others, or by increase of it through its own exertions, then I may hope to be justified for bringing forward a few desultory observations respecting the exercise of the mental powers in a particular direction, which otherwise might seem out of place.

Deficiency of Judgment in every Direction.

I know that in physical matters multitudes are ready to draw conclusions who have little or no power of judgment in the cases; that the same is true of other departments of knowledge; and that, generally, mankind is willing to leave the faculties which relate to judgment almost entirely uneducated, and their decisions at the mercy of ignorance, prepossessions, the passions, or even accident. * * *

There are multitudes who think themselves competent to decide, after the most cursory observation, upon the cause of this or that event (and they may be really very acute and correct in things familiar to them):—a not unusual phrase with them is, that "it stands to reason," that the effect they expect should result from the cause they assign to it, and yet it is *very difficult*, in numerous cases that appear plain, to show this reason, or to deduce the true and only rational relation of cause and effect. In matters connected with natural philosophy, we have wonderful aid in the progress and assurance in the character, of our final judgment, afforded us by the facts which supply our data, and the experience which multiplies their number and varies their testimony. A fundamental fact, like an elementary principle, never fails us, its evidence is always true; but, on the other hand, we frequently have to ask what is the fact?—often fail in distinguishing it,—often fail in the very statement of it,—and mostly overpass or come short of its true recognition.

The *laws of nature*, as we understand them, are the foundation of our knowledge in natural things. So much as we know of them has been developed by the successive energies of the highest intellects, exerted through many ages. After a most rigid and scrutinizing examination upon principle and trial, a definite expression has been given to them; they have become, as it were, our belief or trust. From day to day we still examine and test our expressions of them. We have no interest in their retention if erroneous; on the contrary, the greatest discovery a man could make would be to prove that one of these accepted laws was erroneous, and his greatest honor would be the discovery. Neither would there be any desire to retain the former expression:—for we know that the new or the amended law would be far more productive in results, would greatly increase our intellectual acquisitions, and would prove an abundant source of fresh delight to the mind.

These laws are numerous, and are more or less comprehensive. They are also precise; for a law may present an apparent exception, and yet not be less a law to us, when the exception is included in the expression. Thus, that elevation of temperature expands all bodies is a well defined law, though there be an exception in water for a limited temperature; because we are careful, whilst stating the law, to state the exception and its limits. Pre-eminent among these laws, because of its simplicity, its universality, and its undeviating truth, stands that enunciated by Newton (commonly called the *law of gravitation*), that matter attracts matter with a force inversely as the square of the distance. Newton showed that, by this law, the general condition of things on the surface of the earth is governed; and the globe itself, with all upon it, kept together as a whole. He demonstrated that the motions of the planets round the sun, and of the satellites about the planets, were subject to it. During and since his time, certain variations in the movements of the planets, which were called irregularities, and might, for aught that was then known, be due to some cause other than the attraction of gravitation, were found to be its necessary consequences. By the close and scrutinizing attention of minds the most persevering and careful, it was ascertained that even the distant stars were subject to this law; and, at last, to place as it were the seal of assurance to its never-failing truth, it became, in the minds of Leverrier and Addams (1845), the foreteller and the discoverer of an orb rolling in the depths of space, so large as to equal nearly sixty earths, yet so far away as to be invisible to the unassisted eye. What truth, beyond that of revelation, can have an assurance stronger than this!

Yet this law is often cast aside as of no value or authority, because of the unconscious ignorance amidst which we dwell. You hear at the present day, that some persons can place their fingers on a table, and then elevating their hands, the table will rise up and follow them; that the piece of furniture, though heavy, will ascend, and that their hands bear no weight, or are not drawn down to the wood; you do not hear of this as a conjuring manœuvre, to be shown for your amusement, but are expected seriously to believe it; and are told that it is an important fact, a great discovery amongst the truths of nature. Your neighbor, a well-meaning, conscientious person, believes it; and the assertion finds acceptance in every rank of society, and amongst classes which are esteemed to be educated. Now, what can this imply but that society, speaking generally, is not only ignorant as respects education of the judgment, but is also ignorant of its ignorance. The parties who are thus persuaded, and those who are inclined to think and to hope that they are right, throw up Newton's law at once, and *that* in a case which of all others is fitted to be tested by it; or if the law be erroneous, to test the law.

Why should not one who can thus lift a table, proceed to verify and simplify his fact, and bring it into relation with the law of Newton? Why should he not take the top of his table (it may be a small one), and placing it in a balance, or on a lever, proceed to ascertain how much weight he can raise by the draught of his fingers upwards; and of this weight, so ascertained, how much is unrepresented by any pull upon the fingers downward? He will then be able to investigate the further question, whether electricity, or any new force of matter, is made manifest in his operations; or whether, action and reaction being unequal, he has at his command the source of a perpetual motion. Such a man, furnished with a nicely constructed carriage on a railway, ought to travel by the mere draught of his own fingers. A far less prize than this would gain him the attention of the whole scientific and commercial world; and he may rest assured, that if he can make the most delicate balance incline or decline by attraction, though it be only with the force of an ounce, or even a grain, he will not fail to gain universal respect and most honorable reward.

When we think of the laws of nature (which by continued observation have become known to us), as the proper tests to which any new fact or our theoretical representation of it should, in the first place, be subjected, let us contemplate their assured and large character. Let us go out into the field and look at the heavens with their solar, starry, and planetary glories; the sky with its clouds; the waters descending from above or wandering at our feet; the animals, the trees, the plants; and consider the permanency of their actions and conditions under the government of these laws. The most delicate flower, the tenderest insect, continues in its species through countless years, always varying, yet ever the same.

I do not object to table-moving, for *itself;* for being once stated it becomes a fit, though a very unpromising subject for experiment; but I am opposed to the unwillingness of its advocates to investigate; their boldness to assert; the credulity of the lookers-on; their desire that the reserved and cautious objector should be in error; and I wish, by calling attention to these things, to make the general want of mental discipline and education manifest.

Education of the Judgment in the Study of Nature.

I am persuaded that all persons may find in natural things an admirable school for self-instruction, and a field for the necessary mental exercise; that they may easily apply their habits of thought, thus formed, to a social use; and that they ought to do this, as a duty to themselves and their generation.

Let me first try to illustrate the former part of the case, and at the same time state what I think a man may and ought to do for himself.

The *self-education* to which he should be stimulated by the desire to improve his judgment, requires no blind dependence upon the dogmas of others, but is commended to him by the suggestions and dictates of his own common sense. The first part of it is founded in mental discipline: happily it requires no unpleasant avowals; appearances are preserved, and vanity remains unhurt; but it is necessary that a man *examine himself,* and *that* not carelessly. On the contrary, as he advances, he should become more and more strict, till he ultimately prove a sharper critic to himself than any one else can be; and he ought to intend this, for, so far as he consciously falls short of it, he acknowledges that others may have reason on their side when they criticise him. A first result of this habit of mind will be an internal conviction of *ignorance in many things respecting which his neighbors are taught,* and, that his opinions and conclusions on such matters ought to be advanced with reservation. A mind so disciplined will be *open to correction upon good grounds in all things,* even in those it is best acquainted with; and should familiarize itself with the idea of such being the case; for though it sees no reason to suppose itself in error, yet the possibility exists. The mind is not enfeebled by this internal admission, but strengthened; for, if it cannot distinguish proportionately between the probable right and wrong of things known imperfectly, it will tend either to be rash or to hesitate; while that which admits the due amount of probability is likely to be justified in the end. It is right that we should stand by and act on our principles; but not right to hold them in obstinate blindness, or retain them when proved to be erroneous. I remember the time when I believed a spark was produced between voltaic metals as they approached to contact (and the reasons why it might be possible yet remain); but others doubted the fact and denied the proofs, and on re-examination I found reason to admit their corrections were well founded. Years ago I believed that electrolytes could conduct electricity by a conduction proper; that has also been denied by many through long time: though I believed myself right, yet circumstances have induced me to pay that respect to criticism as to reinvestigate the subject, and I have the pleasure of thinking that nature confirms my original conclusions.

Among those points of self-education which take up the form of *mental discipline*, there is one of great importance, and, moreover, difficult to deal with, because it involves an internal conflict, and equally touches our vanity and our ease. It consists in the *tendency to deceive ourselves* regarding all we wish for, and the necessity of *resistance to these desires*. It is impossible for any one who has not been constrained, by the course of his occupation and thoughts, to a habit of continual self-correction, to be aware of the amount of error in relation to judgment arising from this tendency. The force of the temptation which urges us to seek for such evidence and appearances as are in favor of our desires, and to disregard those which oppose them, is wonderfully great. In this respect we are all, more or less, active promoters of error. In place of practising wholesome self-abnegation, we ever make the wish the father to the thought: we receive as friendly that which agrees with, we resist with dislike that which opposes us; whereas the very reverse is required by every dictate of common sense. Let me illustrate my meaning by a case where the proof being easy, the rejection of it under the temptation is the more striking. In old times, a ring or a button would be tied by a boy to one end of a long piece of thread, which he would then hold at the other end, letting the button hang within a glass, or over a piece of slate-pencil, or sealing-wax, or a nail; he would wait and observe whether the button swung, and whether in swinging it tapped the glass as many times as the clock struck last, or moved along or across the slate-pencil, or in a circle or oval. In late times, parties in all ranks of life have renewed and repeated the boy's experiment. They have sought to ascertain a very simple fact—namely, whether the effect was as reported; but how many were unable to do this? They were sure they could keep their hands immovable,—were sure they could do so whilst watching the result,—were sure that accordance of swing with an expected direction was not the result of their desires or involuntary motions. How easily all these points could be put to the proof by *not looking at the objects*, yet how difficult for the experimenter to deny himself that privilege. I have rarely found one who would freely permit the substance experimented with to be screened from his sight, and then its position changed.

The *inclination* we exhibit in respect of any report or opinion that harmonizes with our preconceived notions, can only be compared in degree with the *incredulity* we entertain towards everything that opposes them; and these opposite and apparently incompatible, or at least inconsistent, conditions are accepted simultaneously in the most extraordinary manner. At one moment a departure from the laws of nature is admitted without the pretence of a careful examination of the proof; and at the next, the whole force of these laws, acting undeviatingly through all time, is denied, because the testimony they give is disliked.

It is my firm persuasion, that no man can examine himself in the most common things, having any reference to him personally, or to any person, thought, or matter related to him, without being soon made aware of *the temptation* and the difficulty of opposing it. I could give you many illustrations personal to myself, about atmospheric magnetism, lines of force, attraction, repulsion, unity of power, nature of matter, &c.; or in things more general to our common nature, about likes and dislikes, wishes, hopes, and fears; but it would be unsuitable and also unnecessary, for each must be conscious of a large field sadly uncultivated in this respect. I will simply express my strong belief, that that point of self-education which consists in teaching the mind to resist its desires and inclinations, until they are proved to be right, is the most important of all, not only in things of natural philosophy, but in every department of daily life.

One exercise of the mind which largely influences the power and character of the judgment, is the habit of forming *clear and precise ideas*. If, after considering a subject in our ordinary manner, we return upon it with the special purpose of noticing the condition of our thoughts, we shall be astonished to find how little precise they remain. On recalling the phenomena relating to a matter of fact, the circumstances modifying them, the kind and amount of action presented, the real or probable result, we shall find that the first impressions are scarcely fit for the foundation of a judgment, and that the second thoughts will be best. For the acquirement of a good condition of mind in this respect, the thoughts should be trained to a habit of clear and precise formation, so that vivid and distinct impressions of the matter in hand, its circumstances and consequences, may remain.

I am persuaded that natural things offer an admirable school for self-instruction, a most varied field for the necessary mental practice, and that those who exercise themselves therein may easily apply the habits of thought thus formed to a social use. As a first step in such practice, clear ideas should be obtained of what is possible and what is impossible. Thus, it is impossible to *create* force. We may employ it; we may evoke it in one form by its consumption in another; we may hide it for a period; but we can neither *create* nor *destroy* it. We may cast it away; but where we dismiss it, there it will do its work. If, therefore, we desire to consider a proposition respecting the employment or evolution of power, let us carry our judgment, educated on this point, with us. If the proposal include the double use of a force with only one excitement, it implies a creation of power, and that *cannot be*. If we could by the fingers draw a heavy piece of wood or stone upward without effort, and then, letting it sink, could produce by its gravity an effort equal to its weight, that would be a creation of power, and *cannot be*.

So again we cannot *annihilate* matter, nor can we *create* it. But if we are satisfied to rest upon that dogma, what are we to think of table-lifting? If we could make the table to cease from acting by the gravity upon the earth beneath it, or by reaction upon the hand supposed to draw it upwards, we *should annihilate it*, in respect of that very property which characterizes it as matter.

Considerations of this nature are very important aids to the judgment; and when a statement is made claiming our assent, we should endeavor to reduce it to some consequence which can be immediately compared with, and tried by, these or like compact and never failing truths. If incompatibility appears, then we have reason to suspend our conclusion, however attractive to the imagination the proposition may be, and pursue the inquiry further, until accordance is obtained; it must be a most uneducated and presumptuous mind that can at once consent to cast off the tried truth and accept in its place the mere loud assertion. We should endeavor to separate the points before us, and concentrate each, so as to evolve a clear type idea of the ruling fact and its consequences; looking at the matter on every side, with the great purpose of distinguishing the constituent reality, and recognizing it under every variety of aspect.

In like manner we should accustom ourselves to clear and definite language, especially in physical matters, giving to a word its true and full, but measured meaning, that we may be able to convey our ideas clearly to the minds of others. Two persons cannot mutually impart their knowledge, or compare and rectify their conclusions, unless both attend to the true intent and force of language. If by such words as attraction, electricity, polarity, or atom, they imply different things, they may discuss facts, deny results, and doubt consequences for an indefinite time without any advantageous progress. I hold it as a great point in self-education that the student should be continually engaged in forming exact ideas, and in expressing them clearly by language. Such practice insensibly opposes any tendency to exaggeration or mistake, and increases the sense and love of truth in every part of life.

I should be sorry, however, if what I have said were understood as meaning that education for the improvement and strengthening of the judgment is to be altogether repressive of the imagination, or confine the exercise of the mind to processes of a mathematical or mechanical character. I believe that, in the pursuit of physical science, the imagination should be taught to present the subject investigated in all possible, and even in impossible views; to search for analogies of likeness and (if I may say so) of opposition—inverse or contracted analogies; to present the fundamental idea in every form, proportion, and condition; to clothe it with suppositions and probabilities, that all cases may pass in review, and be touched, if needful, by the Ithuriel spear of experiment. But all this must be *under government*, and the result must not be given to society until the judgment, educated by the process itself, has been exercised upon it.

When the different data required are in our possession, and we have succeeded in forming a clear idea of each, the mind should be instructed to *balance them* one against another, and not suffered carelessly to hasten to a conclusion. This reserve is most essential; and it is especially needful that the reasons which are adverse to our expectations or our desires should be carefully attended to.

As a result of this wholesome mental condition, we should be able to form a *proportionate judgment*. The mind naturally desires to settle upon one thing or another; to rest upon an affirmative or a negative; and that with a degree of absolutism which is irrational and improper. In drawing a conclusion it is very difficult, but not the less necessary, to make it *proportionate* to the evidence: except where certainty exists (a case of rare occurrence), we should consider our decisions probable only. The probability may appear very great, so that in affairs of the world we often accept such as certainty, and trust our welfare or our lives upon it. Still, only an uneducated mind will confound probability with certainty, especially when it encounters a contrary conclusion drawn by another from like data. Occasionally and frequently the exercise of the judgment ought to end in *absolute reservation*. It may be very distasteful, and, great fatigue, to suspend a conclusion, but as we are not infallible, so we ought to be cautious; we shall eventually find our advantage, for the man who rests in his position is not so far from right as he who, proceeding in a wrong direction, is ever increasing his distance.

The education which I advocate will require *patience* and *labor of thought* in every exercise tending to improve the judgment. It matters not on what subject a person's mind is occupied, he should engage in it with the conviction that it will require mental labor. A powerful mind will be able to draw a conclusion more readily and more correctly than one of moderate character, but both will surpass themselves if they make an earnest, careful investigation, instead of a careless or prejudiced one; and education for this purpose is the more necessary for the latter, because the man of less ability may, through it, raise his rank and amend his position.

This education has for its first and its last step *humility*. It can commence only because of a conviction of deficiency; and if we are not disheartened under the growing revelations which it will make, that conviction will become stronger unto the end. But the humility will be founded, not on comparison of ourselves with the imperfect standards around us, but on the increase of that internal knowledge which alone can make us aware of our internal wants. The first step in correction is to learn our deficiencies, and having learned them, the next step is almost complete: for no man who has discovered that his judgment is hasty, or illogical, or imperfect, would go on with the same degree of haste, or irrationality, or presumption, as before. * *

I know that I fail frequently in that very exercise of judgment to which I call others, and have abundant reason to believe that much more frequently I stand manifest to those around me, as one who errs, without being corrected by knowing it.

In his evidence before the Public Schools Commission, Prof. Faraday expressed very decided opinions on several of the mooted questions of the school curriculum.

NEGLECT OF PHYSICAL SCIENCES AND NATURAL HISTORY.

That the natural knowledge which has been given to the world during the last fifty years should remain untouched, is to me a matter so strange that I find it difficult to understand it. This knowledge is required by men of ordinary intelligence in our lighthouse arrangements, and yet we do not find it here, although when we go over to France we find it in the class of men doing the same duty there—men who can give a reason, supply a correction, and act for themselves, if they see action is wanted. In just such service here we are obliged to displace man after man because they could not attend to the electric light intelligently. The French workman was not superior in natural intelligence, but the English keeper had not been in the way of having that instruction. My experience and observations among witnesses in courts of law, and among men of even good school education, have satisfied me of the too general want of judgment as well as of actual ignorance of natural things—little or no power to give a reason why for what they say or do.

The sciences, of which I notice a great and general ignorance even among our best public school educated men—that of the air, the earth, the water—touch us at all points, every day, every hour, every where—they make up life. And it is difficult to make such adult minds comprehend simple explanations, which if adressed to young people in school or in the shop, will be both intelligible, interesting, and profitable. I never yet found a boy so young as not to be able to understand by simple explanation and to enjoy the point of an experiment. I find the grown up minds coming back to me with the same questions over and over again. They are not prepared to receive these notions. They need the A B C of the subjects.

I could teach a little boy of eleven years old, of ordinary intelligence, all those things in mechanics, hydrostatics, hydraulics, optics, which are usually taught at a much later period. These subjects, and chemistry and botany, should receive attention in apposite ways and times at school.

In matters of natural science, and all the uses and applications of the same, I should turn to a man untaught in other respects, but acquainted with these subjects, rather than to a classical scholar, to find that mode or habit of mind to enable him to judge aptly in this department.

MATHEMATICS IN PUBLIC SCHOOL EDUCATION.

SIR J. F. W. HERSCHEL, who was knighted by Queen Victoria in 1838, as the best representative of the science of her kingdom at the time of her inauguration, thus speaks of Mathematies in the school curriculum:

Regarding as a "public school" any considerable permanent educational establishment in which a large number of youths go through a fixed and uniform course of school instruction, from the earliest age at which boys are usually sent to schools to that in which they either enter the universities or pass in some other mode into manly life, and in which it is understood that the education is what is called a liberal one, with no special professional bias or other avowed object than to form a youth for general life and civilized society, I should consider any system radically faulty which should confine itself to the study of the classical languages, and to so much of Greek and Roman History as is necessary to understand the classical authors, as its main and primary feature, and should admit, and that reluctantly, a mere minimum of extra classical teaching. Such a system must necessarily, I conceive, suffer to languish and become stunted and dwarfed for want of timely exercise, the reasoning faculty, in those years, between fourteen and twenty, when the mind has become capable of consecutive thought and of following out a train of logical argument to a legitimate conclusion. In those years it is quite as important that youths should have placed in their hands and be obliged to study books which may best initiate them in this domain of human thought as in that of classical literature. To be able to express ourselves fluently in Latin or Greek prose or verse, to have attained an extensive familiarity with ancient literature, and a perfect knowledge of the niceties of its grammar, prosody, and idiom—all, in short, which is included in the idea of classical scholarship,—is no doubt very desirable, and I should be one of the last to depreciate it. But it is bought too dear if attained at the sacrifice of any reasonable prospect of improving the general intellectual character by acquiring habits of concentrated thought, by familiarizing the mind with the contemplation of abstract truth, and by accustoming it to the attitude of investigation, induction, and generalization, while it is yet plastic and impressible.

It is these, and not mere utilitarian considerations as to the more favorable start which previous mathematical reading may afford a young man on entering a university, or the advantage in life which a certain amount of knowledge acquired on a variety of other subjects may carry with it—or even as to the general expectation which society has begun to entertain that a young man calling himself educated shall not be wholly ignorant of at least the elements of mathematical and physical science (though these considerations are not without their weight), which incline me to advocate the accordance of a very decided place in public instruction in the upper forms to an elementary course of mathematics, carried in geometry as far as plane and spherical trigonometry, the most ordinary propositions in conic sections, and the doctrine of curves; in symbolic analysis as far as the general nature of equations and the development of functions in infinite series, and including, in the region of applied mathematics, at least the primary elements of statics and dynamics. Such a course might, I think, commence with the average of boys about their 14th year, before which, however, I should expect the four rules of arithmetic, simple and compound, and decimal fractions to have been insisted on.

I know that it is a common idea that classical and mathematical proficiency are incompatible and simply fundamentally different constitutions of mind. This, however, (except as regards the higher degrees of proficiency which go to render a man distinguished, either as a scholar or a mathematician, and the proposition might then be extended to every other form of excellence) I disbelieve; if anything further be intended by such an assertion than that tastes differ, and that most men prefer to give their attention to subjects which fill the imagination and interest the feelings rather than to those which appeal to the unimpassioned reason, and call for a prolonged and steady exercise of the thinking powers. As to the common remark that a very large proportion of young men entering the universities with a high degree of classical training evince a repugnance to the mathematical studies there followed, and not unfrequently rather ostentatiously declare, and proceed to illustrate in practice, their inaptitude for such studies, it proves nothing but that the one-sidedness of their previous education has produced its natural effect; and the consequence I believe to be that a great mass of good mental power, which might have become available to human progress if duly fostered and developed, has thus hitherto been lost to the community. All that I intend, however, in thus protesting against this prevalent notion, is to deprecate its being drawn into an argument for not insisting on attendance on the mathematical classes in the case of boys who really do make little progress, and throwing back into an unmitigated classical routine. In every school there are boys of all degrees of capacity and industry, and therefore of progress. But the absence of these qualities is never admitted as a reason for their being excused attendance at school hours, whatever be the lessons in hand, though it may, and must, retard their advance to higher classes. Besides mathematical and physical subjects there are to be considered the modern languages, history, geography, music, drawing, and a variety of other matters of a similar nature.

Dr. WHEWELL, Master of Trinity College, and Vice President of the University of Cambridge, in which he was also at different times, tutor, professor of mineralogy, moral philosophy, &c., in a treatise on *Liberal Education*, published first in 1835, and with additions in 1850, and commended to the Public School Commission in 1862, has the following remarks:

Any one who has thought at all on the subject of the education of the middle and higher classes in England, must be aware that the great classical schools exercise a very powerful influence upon such educations. The flower of our English youth spend at these schools the years during which the greater part is acquired of all that youths do acquire in the way of learning. It is there that their mental habits in a great measure receive the form which they retain in after life. The tastes there generated, the estimates of different kinds of knowledge there communicated by the contagion of society, are not easily afterwards changed. Even if at the university they are introduced to new subjects of thought, new methods of study, new associates, new motives, still the influence of the school continues to be extremely powerful, and though it may be modified, is never obliterated by subsequent agencies. But the views which have been presented in the preceding pages show us this influence operating still more powerfully in another way. If the scholars who come from the great schools to the university are not in a great degree afterwards moulded by the university system; if they are not engaged upon new subjects and modes of study; if they obtain university honors, and college emoluments, merely by continuing the pursuit of their school-boy labors; if, having done this, they become so numerous in the governing body of the university as to be able to control and direct its measures; if they exercise this power so as to perfect the next generation of school boys from being constrained to any studies except those of the schools; then the university is no longer a place of higher education, supplying the deficiencies of the schools, balancing their partial system, liberalizing their necessarily narrow plan, converting the education of the grammar school into a university education; the university then is merely an appendage to the great schools, rewarding their best scholars, but teaching them nothing; giving prizes, but giving these to proficiency acquired at school, exercising little influence to modify or correct, but much to confirm the impressions made by the mere classical education of boyhood.

After what I have already said, my readers will not be surprised at my again saying that the mathematics ought to be taught at school, so far as to be a preparation for the mathematics which are to be studied at the university; nor at my adding that the present mathematical teaching at several of our great schools fails of satisfying this condition with regard to a great number of their scholars, many of them very well instructed in the classics. Nor shall I here attempt further to illustrate these propositions. That mathematics is a necessary portion of a liberal education, I have endeavored to show in this first part. But mathematics cannot be studied to any purpose at the university, except an effectual beginning is made at school. This is true, even of speculative portions of mathematics, such as geometry, in which the main point is to be able to understand and to state the proofs of the propositions which belong to the science. It is still more true of practical sciences, such as arithmetic, algebra, and practical trigonometry, in which the learner has to apply rules and to perform operations which it requires considerable time and application to learn to apply and to perform correctly, and still more, to perform both correctly and rapidly. If this is not learnt during the period of boyhood, at least with regard to arithmetic, it is never learnt; and when this is the case, all real progress in mathematics is impossible. Yet how imperfectly arithmetic is generally learnt at our great schools, is remarkable to the extent of being curious, besides being, as I conceive it is, a great misfortune to the boys. The sons of great merchants, bankers, and fund-holders, when they leave school, are very generally incapable of calculating the discount upon a bill, and often not able to add up the sums of an account. And few indeed of the sons of our great landowners can calculate the area of a field of irregular, or even of regular form, and given dimensions. This appears to be a lamentable state of things on every account; in its first and lowest bearings, because such ignorance is a great impediment in the practical business of life; in the next place, because arithmetic is in itself a good discipline of attention and application of mind, and when pursued into its applications, an admirable exercise of clearness of head and ingenuity; in the next place, because, as the boys of the middle classes at commercial schools are commonly taught arithmetic (and generally mensuration also) effectively and well, the boys from the great schools have, in this respect, an education inferior to that which prevails in a lower stage of society; and in the next place, again, because the want of arithmetic makes it impossible that such young men should receive a good education at the university. On all these accounts, it appears to me in the highest degree desirable, that arithmetic, at least, should hold a fixed and prominent place in the system of our great schools.

Arithmetic, and when that has been mastered, geometry, mensuration, algebra, and trigonometry in succession, should form a part of the daily business of every school which is intended to prepare students for the university. I am aware that it has been said that any substantial attention to such subjects interferes with the classical teaching; because the classes of boys framed according to their knowledge of Greek and Latin will differ from the classes according to their knowledge of mathematics. Of course this is a difficulty; but one which should be overcome. It has hitherto in a great measure been overcome in the university and in our colleges. It is a difficulty which, if we yield to it, and allow it to deter us from the attempt to improve our education, will make it impossible for us to have a liberal education; because it will exclude all but one element. At this rate, we shall teach our boys Greek and Latin, and not teach them anything else, for fear it should interfere with Greek and Latin; and this, during the first eighteen or nineteen years of life, when they might learn the elements of all human knowledge and acquire habits which would lead them into any part of literature or science, according to their intellectual tendencies.

Arithmetic has usually been a portion of education on somewhat different grounds, namely, not so much on account of its being an example of reasoning, as on account of its practical use in the business of life. To know and to be able familiarly to apply the rules of arithmetic is requisite on innumerable occasions of private and public business; and since this ability can never be so easily and completely acquired as in early youth, it ought to be a part of the business of a boy at school. For the like reasons mensuration ought to be learnt at an early period; that is, the rules for determining the magnitude in numbers of lines, spaces, and solids, under given conditions; a branch of knowledge which differs from geometry as the practical from the speculative, and which, like other practical habits, may be most easily learnt in boyhood, leaving the theoretical aspect of the subject for the business of the higher education which comes at a later period. There is another reason for making arithmetic a part of the school learning of all who are to have a liberal education, namely, that without a very complete familiarity with actual arithmetical processes, none of the branches of algebra can be at all understood. Algebra was, at first, a generalization and abstraction of arithmetic; and whatever other shape it may take by successive steps in the minds of mathematicians, it will never be really understood by those students who do not go through this step. And, as we have already said, there is, in a general education, little or nothing gained by going beyond this. The successive generalizations of one or another new calculus may form subjects of progressive study for those whose education is completed, but cannot enter into a general education without destroying the proportion of its parts.

It is not quite so necessary that geometry should be well studied at school as it is that arithmetic should be well taught there; because in geometry the learner has only to understand and to remember, whereas in arithmetic he has to work in virtue of acquired habit. A student at the university, if he had very good mental talents, might perhaps go forward and acquire a good knowledge of mathematics, even if he had his geometry to begin after his arrival. Still it is not very likely that he would do so. The habits of mental attention and coherence of thought should be cultivated before the age of eighteen, or they will hardly be cultivated to much purpose. It appears to be, in the present state of things, quite necessary that youths who are to come to the university should become masters of some considerable portion of Euclid before they come. Indeed this appears to be the more necessary now, because, so far as I can judge, boys in general are more slow in understanding any portion of mathematics than they were thirty years ago. It may be that I am mistaken, but so it appears to me; and I do not conceive it to be at all improbable that a long continuance of mere classical learning, of the kind which I have already attempted to characterize, should have led to that which not I alone think likely to result from such an education; namely, an incapacity for all continuous thought and all intellectual labor. I do not think it at all incredible that a long course of indulgence in the pleasures of taste and imagination, without any corresponding exercise of the reason, may have emasculated the intellects of the rising generation, so that they prove feeble in comparison with their fathers, when they are called to any task requiring continuous and systematic thought.

In the treatise (Part I. and II.), from which the foregoing extracts are taken, Dr. Whewell maintains the supremacy of mathematical study in the cultivation of the reasoning faculty over the classics or natural science, and as a useful gymnastic of the mind, far superior to logic itself. In this field he encountered an antagonist at least worthy of his steel.

SIR WILLIAM HAMILTON.

In an elaborate essay in the Edinburgh Review for January, 1836, Sir William Hamilton examines the claims set forth by Dr. Whewell, and summons a cloud of witnesses to the soundness of his own views in contradiction of those claims.

How opposite are the habitudes of mind which the study of the Mathematical and the study of the Philosophical sciences* require and cultivate, has attracted the attention of observers from the most ancient times. The principle of this contrast lies in their different objects, in their different ends, and in the different modes of considering their objects;—differences in the sciences themselves, which calling forth, in their cultivators, different faculties, or the same faculty in different ways and degrees, determine developments of thought so dissimilar, that in the same individual a capacity for the one class of sciences has, not without reason, been considered as detracting from his qualification for the other.

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*It may be proper here to remark upon the vague universality which is given to the terms *philosophy* and *philosophical* in common English; an indefinitude limited specially to this country. Mathematics and Physics *may* here be called philosophical sciences; whereas, on the Continent, they are excluded from philosophy, philosophical being there applied emphatically to those sciences which are immediately or mediately *mental*. Hegel, in one of his works, mentions that in looking over what in England are published under the title of "Philosophical Transactions," he had been unable to find any philosophy at all. This abusive employment of the words is favored, I believe, principally, at Cambridge; for if Mathematics and Physics are not philosophical, then that university must confess that it now encourages no philosophy whatever. The history of this insular peculiarity might easily be traced.

As to their *objects*.—In the first place:—The Mathematical sciences are limited the relations of quantity alone, or, to speak more correctly, to the one relation quantities—equality and inequality; the Philosophical sciences, on the conrary, are astricted to none of the categories, are coëxtensive with existence and its modes, and circumscribed only by the capacity of the human intellect itself. In the second place:—Mathematics take no account of things, but are conversant solely about certain images; and their whole science is contained in the separation, conjunction, and comparison of these. Philosophy, on the other hand, is mainly occupied with realities; it is the science of a real existence, not merely of an imagined existence.

As to their *ends*, and their procedure to these ends.—Truth or knowledge is, indeed, the scope of both; but the kind of knowledge proposed by the one is very different from those proposed by the other.—In Mathematics, the whole principles are given; in Philosophy, the greater number are to be sought out and established.—In Mathematics, the given principles are both material and formal, that is, they afford at once the conditions of the construction of the science, and of our knowledge of that construction (*principia essendi et cognoscendi*). In Philosophy, the given principles are only formal—only the logical conditions of the abstract possibility of knowledge. In Mathematics, the whole science is virtually contained in its data; it is only the evolution of a potential knowledge into an actual, and its procedure is thus merely explicative. In Philosophy, the science is not contained in data; its principles are merely the rules for our conduct in the quest, in the proof, in the arrangement of knowledge; it is a transition from absolute ignorance to science, and its procedure is therefore ampliative. In Mathematics we always depart from the definition; in Philosophy, with the definition we usually end.—Mathematics know nothing of causes; the research of causes is Philosophy; the former display only the *that* (τὸ ὅτι); the latter mainly investigates the *why* (τὸ διότι).—The truth of Mathematics is the harmony of thought and thought; the truth of Philosophy is the harmony of thought and existence. Hence the absurdity of all applications of the mathematical method to philosophy.

It is, however, proximately in the different modes of considering their objects that Mathematics and Philosophy so differently cultivate the mind.

In the *first* place:—Without entering on the metaphysical nature of Space and Time, as the basis of concrete and discrete quantities, of geometry and arithmetic, it is sufficient to say that Space and Time, as the necessary conditions of thought, are, severally, to us absolutely one; and each of their modifications, though apprehended as singular in the act of consciousness, is, at the same time, recognized as virtually, and in effect, universal. Mathematical science, therefore, whose notions (as number, figure, motion) are exclusively modifications of these fundamental forms, separately or in combination, does not establish their universality on any *a posteriori* process of abstraction and generalization; but at once contemplates the general in the individual. The universal notions of philosophy, on the contrary, are, with a few great exceptions, generalizations from experience; and as the universal constitutes the rule under which the philosopher *thinks* the individual, philosophy consequently, the reverse of mathematics, views the individual in the general.

In the *second* place:—In Mathematics, quantity, when not divorced from form, is itself really presented to the intellect in a lucid image of phantasy, or in a sensible diagram; and the quantities which can not thus be distinctly construed imagination and sense, are, as only syntheses of unity, repetitions of identity, adequately, though conventionally, denoted in the vicarious combination of a few simple symbols. Thus both in geometry, by an ostensive construction, and in arithmetic and algebra, by a symbolical, the intellect is relieved of all effort in the support and presentation of its objects; and is therefore left to operate upon these in all the ease and security with which it considers the concrete realities of nature. Philosophy, on the contrary, is principally occupied with those general notions which are *thought* by the intellect but are not to be *pictured* in the imagination; and yet, though thus destitute of the light and definitude of mathematical representations, philosophy is allowed no adequate language of its own; and the common language, in its vagueness and insufficiency, does not afford to its unimaginable abstractions that guarantee and support, which, though less wanted, is fully obtained by its rival science, in the absolute equivalence of mathematical thought and mathematical expression.

In the *third* place:—Mathematics, departing from certain original hypotheses and these hypotheses exclusively determining every movement of their procedure, and the images or the vicarious symbols about which they are conversant being clear and simple, the deductions of the sciences are *apodictic* or demonstrative; that is, the possibility of the contrary is, at every step, seen to be excluded in the very comprehension of the terms. On the other hand, in Philosophy (with the exception of the Theory of Logic), and in our reasonings in general, such demonstrative certainty is rarely to be attained; *probable* certainty, that is, where we are never conscious of the impossibility of the contrary, is all that can be compassed; and this also, not being internally evolved from any fundamental *data*, must be sought for, collected, and applied from without.

From this general contest it will easily be seen, how an excessive study of mathematical sciences not only does not prepare, but absolutely incapacitates the mind, for those intellectual energies which philosophy and life require. We are thus disqualified for observation, either internal or external—for abstraction and generalization—and for common reasoning; nay disposed to the alternative of blind credulity or of irrational skepticism. * * *

But the study of mathematical demonstration is mainly recommended as a practice of reasoning in general, and it is precisely, as such a practice, that its inutility is perhaps the greatest. General reasoning is almost exclusively occupied on contingent matter; if mathematical demonstration therefore supplies, as is contended, the best exercise of practical logic, it must do this by best enabling us to counteract the besetting tendencies to error, and to overcome the principal obstacles in the way of our probable reasonings. Now, the dangers and difficulties of such reasoning lie wholly—1, in its *form*—2, in its *vehicle*—3, in its *object-matter*. Of these severally.

1. As to the *form*:—The study of mathematics educates to no sagacity in detecting and avoiding the fallacies which originate in the thought itself of the reasoner.—Demonstration is only demonstration, if the necessity of the one contrary and the impossibility of the other be, from the nature of the object-matter itself, absolutely clear to consciousness at every step of its deduction. Mathematical reasoning, therefore, as demonstrative, allows no room for any sophistry of thought; the necessity of its matter necessitates the correctness of its form, and, consequently, it cannot forewarn and arm the student against this formidable principle of error. * * *

2. In regard to the *vehicle*:—Mathematical language, precise and adequate, nay, absolutely convertible with mathematical thought, can afford us no example of those fallacies which so easily arise from the ambiguities of ordinary language;

its study can not, therefore, it is evident, supply us with any means of obviating those illusions from which it is itself exempt. The contrast of mathematics and philosophy, in this respect, is an interesting object of speculation; but, as imitation is impossible, one of no practical result.

3. I nrespect of the *matter*:—Mathematics afford us no assistance, either in conquering the difficulties, or in avoiding the dangers which we encounter in the great field of probabilities wherein we live and move.

As to the *difficulties*:—Mathematical demonstration is solely occupied in deducing conclusions; probable reasoning, principally concerned in looking out for premises.—All mathematical reasoning flows from, and—admitting no tributary streams—can be traced back to its original source: principle and conclusion are convertible. The most eccentric deduction of the science is only the last ring in a long chain of reasoning, which descends, with adamantine necessity, link by link, in one simple series, from its original dependence.—In contingent matter, on the contrary, the reasoning is comparatively short; and as the conclusion can seldom be securely established on a single antecedent, it is necessary, in order to realize the adequate amount of evidence, to accumulate probabilities by multiplying the media of inference; and thus to make the same conclusion, as it were, the apex of many convergent arguments. In general reasoning, therefore, the capacities mainly requisite, and mainly cultivated, are the prompt acuteness which discovers what materials are wanted for our premises, and the activity, knowledge, sagacity, and research able competently to supply them.—In demonstration, on the contrary, the one capacity cultivated is that patient habit of suspending all intrusive thought, and of continuing an attention to the unvaried evolution of that perspicuous evidence which it passively recognizes, but does not actively discover. Of Observation, Experiment, Induction, Analogy, the mathematician knows nothing. What Mr. Whewell, therefore, alleges in praise of demonstration—"that the mixture of various grounds of conviction, which is so common in other men's minds, is rigorously excluded from the mathematical student's," is precisely what mainly contributes to render it useless as an exercise of reasoning. In the practical business of life the geometer is proverbially but a child: and for the theory of science?—the subtlety of mind, the multiformity of matter, lie far beyond calculus and demonstration; mathematics are not the net in which *Psyche* may be caught, nor the chain by which *Proteus* can be fettered.

As to the *dangers*:—How important soever may be the study of general logic, in providing us against the fallacies which originate both in the form and in the vehicle of reasoning, the error of our conclusions is, in practice, far less frequently occasioned by any vice in our logical inference from premises, than by the sin of a rash assumption of premises materially false. Now if mathematics, as is maintained, do constitute the true logical *catharticon*, the one practical *propædeutic* of all reasoning, it must of course enable us to correct this the most dangerous and prevalent of our intellectual failings. But, among all our rational pursuits, mathematics stand distinguished, not merely as affording us no aid toward alleviating the evil, but as actually inflaming the disease. The mathematician, as already noticed, is exclusively engrossed with the deduction of inevitable conclusions, from data passively received; while the cultivators of the other departments of knowledge, mental and physical, are for the most part, actively occupied in the quest and scrutiny, in the collection and balancing of probabilities, in order to obtain and purify the facts on which their premises are to be established.

HISTORICAL DEVELOPMENT OF CLASSICAL STUDIES.[*]

The Greek and Latin tongues, with the literature to which these tongues are the keys, obtained their foothold in the schools of Christian nations, not because the study of a dead language was the best mental discipline for young students, or the only means of their acquiring a masterly freedom in the use of their own tongue, but because at the time they were introduced into schools, as branches of study, they were the languages of educated men, and were employed for public business, literature, philosophy, science and religion. Once introduced, they have retained their position partly for the same reasons, and partly by the influence of endowments and the force of habit.

Greek Language.

It arose from the relations in which the Greek and Latin languages have stood, in the past, to the whole higher life, intellectual and moral, literary and scientific, civil and religious, of Western Europe. Greeks and Romans, as well as Jews, are our spiritual ancestors. They left treasures of recorded thought, word, and deed, by the timely and judicious use of which their heirs have become the leaders of mankind. But they left them in custody of their native tongues.

After Alexander, the Greek tongue spread widely through the East, and became the means of blending Oriental with Western modes of thought. Commerce prepared the way for liberal intercourse. Ideas were exchanged freely with reciprocal advantage. But the Greek, offering new philosophy for old religion, obtained for Europe the more precious gift—

Χρύσεα χαλκείων, ἑκατόμβοι ἐννεηβοίων.

No faith attracted more attention than that of the Jews. Their sacred books were carefully translated into the Greek language, and afterwards, by fanciful adaptation, and by real insight, expressed in terms of Greek thought. Greek philosophy, meanwhile, embracing with reverence the long-sought wisdom of the East, went beyond the measure of Pythagoras, Socrates, or Plato, and often beyond the guidance of sober reason, in ascetic abstraction from the things of sense, and ardent longing after spiritual truth.

Christianity itself had Greek for its mother-tongue. St. Paul, a Roman citizen, writes in Greek to the Christians of Rome. The Epistle to the Hebrews is Greek, and so is that of St. James "to the twelve tribes scattered abroad."

For great part of three centuries, the churches of the West were mostly "Greek religious colonies."[†] Their language, their organization, their liturgy,[‡] their Scriptures, were Greek. The Apostolic Fathers, the apologists and historians of the early church, the great theologians, orthodox and heretic, wrote and spoke Greek. The proceedings of the first seven Councils were carried on, and the speculative form of the Christian faith defined, in that language. It was hardly possible to handle the profounder questions in any other. Augustine is at a loss for words to speak of them in Latin. Seven centuries later Anselm undertakes the task with diffidence; nor is it clear whether in his own judgment he succeeds or fails.

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[*] This article is mainly from an "*Essay on the History of Classical Education*," in McMillan's Essays on Liberal Studies. 1867, by Charles Stuart Parker. The author refers to Von Raumer, and Schmidt, for his material.

[†] Milman's Latin Christianity, i. 27.

[‡] It is significant that the word *liturgy* is Greek, as are *hymn*, *psalm*, *homily*, and *catechism*, *baptism* and *eucharist*, *priest*, *bishop*, and *pope*.

Thus, when Christianity became the State religion, and the emperor, in such broken language as he could command, took a modest part in the discussions of Nicæa, it was a last and signal spiritual triumph of captive Greece over Rome.

The ancient Church encouraged the study of heathen literature, but with a paramount regard to morality and Christian truth. Plato, Cicero, and Quintilian had pointed out the danger of using the poets indiscriminately as school-books; and the Father who slept with Aristophanes under his pillow would not have placed him in the hands of boys. But even Tertullian allowed Christian boys to attend the public schools under pagan masters.

Origen made the study of heathen poets and moralists preparatory to that of higher Christian truth. His master, Clement, taught that philosophy was the testament or dispensation given to the Greeks, the schoolmaster to bring them, as the Mosaic law brought the Jews, to Christ. And his teaching was generally accepted. To this day "along the porticoes of Eastern churches, both in Greece and Russia, are to be seen portrayed on the walls the figures of Homer, Thucydides, Pythagoras, and Plato, as pioneers preparing the way for Christianity." When Julian forbade the Christians to institute public schools of rhetoric and literature, in which pagan authors might be read, the bishops protested.

During this first Christian age, Greek was the common language of literature, while Latin, after Tacitus and Pliny, rapidly declined. The "Meditations" of the Emperor Marcus Aurelius are composed in the vernacular of the freedman Epictetus. No Latin names can be placed beside those of Lucian and Plutarch, Arrian and Dion Cassius, Ptolemy and Galen. At Athens and Alexandria, the great conservative and liberal universities, studies in grammar and criticism were conducted side by side with philosophy and science. In both alike the Greek tongue was employed. Of all the considerable intellectual production which went on throughout the Roman world, jurisprudence alone was Latin.

Latin Language.

If Greek was the chosen language which carried literature, science, and wisdom, Christian, as well as heathen, to the highest pitch in the ancient world, Latin also was an appointed means of transferring them to Western Europe.

The imperial art of Rome laid the solid foundations on which, when the flood of barbarism began to subside, much of the old fabric was laboriously reconstructed, before the thoughts of man took a wider range. In Spain and Gaul Latin became the mother tongue. But in uneducated mouths it resumed that process of decay and regeneration, the natural life of a language spoken and not written, which only literature can arrest. Hence in time, Italians, as well as Spaniards and French, had to learn book-Latin as a foreign language. It was to them what the writings of our forefathers would be to us, if "Englisc" literature excelled English as Roman did "Romance." But other than literary interests maintained the old Latin as a common language beside the provincial dialects of the new.

The laws of the Western Empire, the last and greatest product of the ancient Roman mind, were adopted by the Gothic, Lombard, and Carlovingian dynasties, and in the twelfth century the first great European school at Bologna was thronged by students of Roman law. At one time there were twenty thousand, from different countries, dividing their attention between civil and canon law, the Pandects and the Decretals. Both were studied with a view to advancement in life, but especially to Church preferment.

Indeed it may be said, with as much truth as is required in metaphor, that the ark which carried through the darkest age, together with its own sacred treasures, the living use of ancient Latin, and some tradition of ancient learning, was the Christian Church.

What at first had been everywhere a Greek became in Western Europe a Latin religion. The discipline of Rome maintained the body of doctrine which the thought of Greece had defined. A new Latin version, superseding alike the venerable Greek translation of the Old Testament and the original words of Evangelists and Apostles, became the received text of Holy Scripture. The Latin Fathers acquired an authority scarcely less binding. The ritual, lessons, and hymns of the Church were Latin. Ecclesiastics transacted the business of civil departments requiring education. Libraries were armories of the Church: grammar was part of her drill. The humblest scholar was enlisted in her service: she recruited her ranks by founding Latin schools. "Education in the rudiments of Latin," says Hallam, "was imparted to a greater number of individuals than at present;" and, as they had more use for it than at present, it was longer retained. If a boy of humble birth had a taste for letters, or if a boy of high birth had a distaste for arms, the first step was to learn Latin. His foot was then on the ladder. He might rise by the good offices of his family to a bishopric, or to the papacy itself by merit and the grace of God. Latin enabled a Greek from Tarsus (Theodore) to become the founder of learning in the English church; and a Yorkshireman (Alcuin) to organize the schools of Charlemagne. Without Latin, our English Winfrid (St. Boniface) could not have been apostle of Germany and reformer of the Frankish Church; or the German Albert, master at Paris of Thomas Aquinas; or Nicholas Breakspeare, Pope of Rome. With it, Western Christendom was one vast field of labor: calls for self-sacrifice, or offers of promotion, might come from north or south, from east or west.

Thus in the Middle Ages Latin was made the groundwork of education; not for the beauty of its classical literature, nor because the study of a dead language was the best mental gymnastic, or the only means of acquiring a masterly freedom in the use of living tongues, but because it was the language of educated men throughout Western Europe, employed for public business, literature, philosophy, and science; above all, in God's providence, essential to the unity, and therefore enforced by the authority, of the Western Church.

But the Latin of the Middle Ages was not classical, and in the West Greek became an unknown tongue. Cicero did less to form style than Jerome; Plato was forgotten in favor of Augustine; Aristotle alone, translated out of Greek into Syriac, out of Syriac into Arabic, out of Arabic into Latin, and in Latin purged of every thing offensive to the mediæval mind, had become in the folios of Thomas Aquinas a buttress, if not a pillar, of the Christian Church.

Prof. Max Müller, Taylorian Professor of Modern Languages at Oxford, remarks on the study of these languages:

> The experience of German schools, as well as of English, as generally constituted, is this: fluency in speaking is never acquired. The time spared from other studies is only sufficient to give the pupil a good grounding in grammar, and the mastery of a sufficient number of words to enable him to read a newspaper or an historical author.
>
> Some boys have no ear for accents at all, just as some have no ear for music, and, although they may hear a word pronounced by a Frenchman, they cannot imitate it.
>
> Much more might be saved in the teaching French at public schools if it was grafted on the knowledge of Latin which most of the boys possess. There is no feature of French grammar which does not find its explanation in Latin, and if the connecting links were clearly put before the pupil, he would find that his knowledge of Latin enables him at once to understand the apparently new parts of French grammar that come before him. The experiment was made in France in 1852, under the recommendation of the Minister, and in a text-book prepared by M. Egger, a member of the Institute
>
> In a public school, French should be taught by an Englishman properly instructed in the language, assisted by a French teacher, who should have charge of the pronunciation and idiomatic part of the language.
>
> The study of French and German has increased in Oxford — nearly all its good scholars try to learn German, because it opens a vast literature.
>
> Socially and educationally, I think the study of Latin and Greek is of the highest importance. Frederick the Great said to his teachers: "Whatever you do, do not let a boy grow up without knowing Latin."

Prof. Goldwin Smith distinguishes between the earlier and the later motives for the excessive devotion to classical studies thus:

> Then (in the period of the Tudors and earlier Stuarts) education was classical, but classical learning was then, not a gymnastic exercise of the mind in philology, but a deep draught from what was the great and almost the only spring of philosophy, science, history, and poetry at that time. It introduced the student to a great treasure of wisdom and knowledge, and not to philological niceties and beauties. Latin was then the language of literary, ecclesiastic, diplomatic, loyal, academic Europe; and familiarity with it was the first and most indispensable accomplishment, not only of the gentlemen, but of the high born ladies of the time.
>
> In choosing the subjects of boys studies, you may use your own discretion; in choosing the subjects of a man's studies, if you desire any worthy and fruitful effect, you must choose such as the world values, and such as may receive the allegiance of a manly mind. It has been said that six months study of the language of Schiller and Goethe, will now open to the student more enjoyment than six years study of the language of Greece and Rome. It is certain that six months study of French will now open to the student more of Europe, than six years of that which was once the European tongue.

Baron Houghton (Richard Monckton Milnes, raised to the peerage in 1862), in an Essay on the Social Results of Classical Education (published in 1867), advocates "the more frank recognition of the worth and use of translations into modern languages, which represent, as truly as may be, the graces of form, and the essential merits of the original writers: versions, not merely accurate, but sympathetic with the matter and style they are handling — of poetry, by poets, of oratory, by orators, of history and philosophy, by affectionate students of the emotions and reflections of mankind. These should, by right, be the most effective material of school training, instead of being prohibited, and regarded as substitutes for severe study and inducements to juvenile indolence. But the true encouragement to a more general and unpedantic cultivation of what is universal and enduring in classic literature and life, beyond the mechanism of language, would result from such an alteration of the habitual methods of instruction as would strive, first and foremost, to fill the mind of each pupil with the realities of the past, and to make the thoughts and deeds of their old excellencies as intelligible to him as the events of his own time in the working of his own observation."

BOTANICAL SCIENCE.

ARTHUR HENFREY, in a Lecture before the London Society of Arts, advocates the claims of Botanical science for public schools:

The most remarkable of the classifications of the sciences which have been given to the world, may be briefly characterized by arrangement under three heads, indicating the totally distinct points of view from which they set out:

1. Those based upon the sources of knowledge.
2. Those based upon the purpose for which the knowledge is sought; and
3. Those based upon the nature of the objects studied.

1. The classifications of the first kind,—those which arrange the various branches of knowledge according to the character of the intellectual methods and processes by means of which they are cultivated, are termed subjective, as regarding alone the nature of the recipient mind, or subject.

If we disregard the technicalities of metaphysics, or rather psychology, we may conveniently restrict our analysis of this, to the distinction of two qualities, those of *perception* and *reflection*.

By perception, by the aid of the senses, we observe facts: these facts may be either independent of our influence, when we call the *observation* proper; or they may be the result of special contrivance on our parts, when the mode of observation is called *experimentation*; and, again, we may receive information of observed facts by *testimony* of others. All these processes involve the acquisition of *experience*, direct or indirect, of phenomena; the sciences pursued especially by their means are called *experimental*, and the truths of experience are *facts*.

Reflection is the action of the reasoning faculty, according to its own laws, upon the simple ideas furnished by perception, dealing with certain properties of these, which it abstracts from the facts of perception, and, by the comparison and classification of them, arriving at generalizations, principles, laws, and the like, known by the collective name of *theory*. Those sciences which depend almost entirely upon the reason, are called *rational*, *abstract*, or *theoretical*.

Now, when we consider that there exists no science purely abstract from its origin, and that the measure of advancement of every science in the degree to which it has co-ordinated the ideas with which it deals under general propositions and laws, it becomes obvious that the division into *experimental* and abstract is totally inapplicable to the existing state of science.

2. The classifications according to purpose, the division into *speculative* and *applied* or *practical* sciences, fail almost in the same way, since the progression of every science is marked step by step, by the removal of certain truths from the position of abstract theories, interesting only to the learned, into the rank of axioms from which practical results of the greatest value are derived.

3. The third point of view is that from which we regard only the objects of our study, without considering either the faculties or processes by which we obtain our knowledge, or the advantages we may derive from its acquisition.

When we reflect upon the ordinary operations of our reasoning faculties, upon the common rules of logic, it becomes evident that this last mode of classification is the only one that can be called *rational*, since it is the only one which proceeds, according to the indispensable rule, of advancing from the most simple to the more complex of the ideas, which we wish to co-ordinate in our minds. The other two modes, the division into experimental and rational, abstract and applied sciences, must not only, from their nature, continually shift their ground as knowledge progresses, but they both set out from considerations of a highly complex character, which it would be vain to attempt to analyze, until a very large portion of the whole field of human inquiry has been cleared.

The principle is laid down by Descartes in his "Method," in the following terms:—"To conduct my thoughts in order, commencing with the objects which are simplest and easiest to know, so as to rise gradually to the knowledge of the more compound;" and in a subsequent chapter he traces the course of his inquiries through mathematics, general physics, botany, zoölogy, and the sciences relative to man, according to the progressive complexity of the subjects.

In the chain or series thus formed, there not only exists a logical sequence, a relation of progression of the number of *kinds* of ideas with which we have to deal, but there is a relation of dependence, insomuch that each science rests upon that preceding it for a certain proportion of its data, and in turn constitutes the necessary basis for that which follows,—added to which we find the history of the development of the individual sciences bringing a striking confirmation of the validity of the principle, by showing that, although the first steps were made almost simultaneously in all the great divisions of science here laid down, the most simple have, from their nature, outstripped, in exact proportion to their relative simplicity, those which involve more complicated classes of generalities; so that, as it has been well expressed, the *logical antecedents* have always been the *historical antecedents*.

The objective classification of the sciences may be briefly explained here.

The primary divisions depend upon the groups or classes of truths, which must be arranged according to their simplicity, or, what amounts to the same, their generality: in other words, the small number of qualities attached to the notions with which they deal.

The mathematical sciences deal with ideas which may be abstracted entirely from all material existence, retaining only the conceptions of space and number.

The physical sciences require, in addition, the actual recognition of matter, or force, or both, in addition to relations in space and time, but they are still confined to *universal* properties of matter.

The biological sciences are distinguished, in a most marked manner, by their dependence; the laws of life relate to objects having relations in space and time, and having material existence; they display, moreover, in their existence, a dependence upon physical laws, which form their medium; but they are distinguished by the presence of organization and life, characterized by a peculiar mobility and power of resistance to the physical forces, and an individuality of a different kind from that found in inorganic matter.

The sciences relating to man, to human society, are removed another step, by the interference, among all the preceding laws, of those relating to the human mind in its fullest sense.

We thus obtain four groups. The following table illustrates these remarks:—

Truths,	Abstract or absolute, ...		Mathematical Sciences.
	Relative . . .	to Matter, .	Physical Sciences.
		to Life, . .	Biological Sciences.
		to Man, . .	Social Sciences.

These four groups include respectively a number of secondary sciences derived from, dependent on, or forming essential constituents of the groups. With these we shall only so far engage ourselves here as relates to the subdivisions of biological science. Certain common characters run through these, life and organization being attributes of all the objects with which they are conversant. Physiology and morphology traverse the whole field of organic nature, animal as well as vegetable. But as animals and vegetables exhibit, in mass, a manifest difference in the degree of complexity of the vital powers and the organization,—since the animal kingdom exhibits qualities which are superadded to, and conjoined with those which it shares with the vegetable kingdom,—it becomes necessary to distinguish the branches of biology relating to these, and to divide these sciences under two heads, Botany and Zoölogy.

The greater simplicity of the physiological processes of vegetables, is alone sufficient to indicate their inferiority, or antecedent position in the scale of natural objects; and this is further confirmed, in accordance with the principle of objective classification, by their greater generality, since they extend through the succeeding group, in the vegetative or organic life of animals, while the animal life proper is restricted to the latter. And this physiological distinction is in agreement with a morphological or anatomical difference; for not only is the apparatus of organic life more complicated in animals, but these possess a system of organs, the nervous system, which is not represented in any way in vegetables, and constitutes the especial instrument or seat of that kind of spontaneity which is the most striking characteristic of animal life.

We will now direct our attention to some further considerations regarding the relations of botany, as one of the biological sciences, to those preceding it in the classification we have adopted. That branch of physics which immediately precedes it is chemistry, the most special of the physical sciences, and its relations with this it will be sufficient for us to examine among the antecedents.

Chemistry, like the biological sciences, penetrates into the intimate constitution of natural bodies, and moreover, the bodies subject to its domain exhibit a kind of individuality not dependent upon ideas of number, density, color, &c.,

alone, but upon this said intimate constitution. We arrive here at the formation of certain abstract notions, for the purpose of classification, which include in the particulars from which they are derived, both statical and dynamical characters. These abstractions refer to the idea of a *species*, which, however, is far more general here than in botany or zoölogy. A species in chemistry is a definite compound of two or more elements, in obedience to certain general laws, possessing certain definite characters, by which it may be known from all other species; the relation between the objects represented in this conception is one of identity in all respects but that of simple material continuity; the individuality of separate natural objects belonging to the given species depends solely upon their being mechanically separated from each other. There do indeed exist *varieties* in chemical species analogous to the varieties of species in living nature, but these partake of the same unstable individuality, and depend upon physical causes of great generality. Thus the allotropic conditions of some chemical substances, and even perhaps the crystalline or amorphous states of many, may be regarded as varieties of this kind. These species are remarkable, not only from the generality of their nature but from their immobility. The only possible change in a chemical species is its conversion into other species, or transformation, in which the relations become entirely changed, and the name altered. There is nothing like development here,—the gradual unfolding by assimilation and transformation of material received from without.

In the organic kingdoms the idea of the species is an abstraction from very different facts. The objects to which it refers have a separate individuality, dependant upon characters non-existent in inorganic bodies. They are incapable of transformation, but susceptible of change according to certain laws; and while the chemical individual is homogeneous, and can only be divided into parts, of which each equally well represents the species, the biological individual is divisible in parts of different kinds, which have relations of harmony and continuity, but by no means of homogeneity, these parts making up together what constitutes the organism. Thus we see a distinct gradation between chemistry and biology, in reference to the generality of the notion which forms the basis of all classification in each.

In biology itself we find that the notion of the individual is modified in an analogous manner, when we carry it up from the vegetable into the animal kingdom; at all events, in those subjects of the latter, in which animality is most clearly manifest. In regard to taxonomy, then, or classification, botany stands between chemistry and zoölogy. * * *

As the taxonomy, or the classification of plants, is that department of botany which gives it a special utility as a means of mental training; as it is on this ground, above all, that it founds a claim to form a part of general education, it may be permitted me to enter into some technical details here, to illustrate and enforce the propositions just laid down. In the first place, the terminology of botany demands attention. It is a fundamental condition of the existence of organography, that the botanist should possess a rigidly defined technical language, a store of descriptive terms, sufficiently copious, to denote every part and every quality of the parts of plants by a distinct name, fixed, and unalterable in the sense in which it is employed. The technical language of botany, as elaborated by Linnæus and his school, has long been the admiration of logical and philosophical writers and has indeed been carried to great perfection. Every word has its definition, and can convey but one notion to those who have once mastered the language. The technicalities, therefore, of botanical language, which are vulgarly regarded as imperfections, and as repulsive to the inquirer, are in reality the very marks of its completeness, and far from offering a reason for withholding the science from ordinary education, constitute its great recommendation, as a method of training in accuracy of expression and habits of describing definitely and unequivocally the observations made by the use of the senses. The acquisition of the terms applied to the different parts of plants exercises the memory, while the mastery of the use of the adjectives of terminology cultivates, in a most beneficial manner, a habit of accuracy and perspicuity in the use of language. What is called the nomenclature of botany refers to the names given to the abstract notions of the kinds of beings dealt with in classification—to the species, genera, families, and so on. These refer not merely to the possession of particular attributes, but carry with them the idea of those attributes being distinctive of a *kind* of things; that is, they carry with them not only their definition founded upon qualities, but the idea, superadded to their definition, that these qualities are characteristic of an abstraction.

In the first place, it must be evident to every one that the general physiology of plants (which presupposes a knowledge of the physical and chemical laws influencing them), together with the concrete natural history of the species dealt with, must form the only secure basis of scientific agriculture: that it has not been fully recognized as such hitherto, depends upon its inevitable imperfections, which, however, will be the sooner removed, in proportion as agriculturists devote themselves to the study of physiological laws.

Secondly, botany finds a place in the two cosmological sciences studying the past and present conditions of the globe—Geology and Geography.

The perishable nature of vegetable structures does, indeed, render fossil remains of plants less valuable as objects for palæontological reasonings, than the better-preserved hard parts of animals, especially as the latter afford safer grounds for estimating how much has been lost, how much preserved, of ancient forms of organization. But botanical reasonings form an e sential link in geological inductions, although it is requisite to be very careful in applying the analogical method, derived from classification, to the history of the development of the organic creation.

In geography, that is, physical geography, the concrete natural history of plants becomes a portion of the concrete natural history of the globe; the physiological laws are involved with physical laws of climate, soil, &c., in the explanations of possible distributions, either in an abstract point of view, or for the purpose of practical application; while the systematic classifications, and the natural history of particular species, become the only guide by which we can attempt to trace back the existing conditions of distribution towards their origin, and thus perform the share due from botany; in the historical connection of physical geography with geology, of which it is properly only the statical part.

PROF. J. HOOKER, Director of the Botanical Gardens at Kew:

From my experience, I should judge that any study systematically pursued and mastered most necessarily expand the mental powers; but I think I should put classics at the bottom and mathematics next, and I should put natural history first, not because it is better than mathematics, but because it can be taught at an age when mathematics would injure the mind, and, further, it is applicable to minds which have no capacity for mathematics. A child can begin natural history at eight or nine years old, and it could be made an amusement and a pleasure if properly taught. A child, after having examined one butter-cup, is enabled thereby to recognize another, though dissimilar, kind of buttercup, and the process affords pleasure.

I know that in conducting the examination of medical men for the army, which I have now conducted for several years, and those for the East India Company's service, which I have conducted for, I think, seven years, the questions which I am in the habit of putting, and which are not answered by the majority of the candidates, are what would have been answered by the children in Professor Henslow's village school. I believe the chief reason to be, that their observing faculties as children have never been trained, such faculties having lain dormant with those who naturally possessed them in a high degree, and having never been developed by training in those who possessed them in a slow degree. Furthermore, in most medical schools the whole sum and substance of botanical science is crammed into a four weeks of lectures, and the men leave the class without an accurate knowledge of the merest elements of the science.

The advantage of botany is that you can teach it anywhere and everywhere. The child as he walks along can make use of his botanical knowledge, can procure his specimen, and, having put his information into writing, can preserve the knowledge of the specimen itself. This cannot be done to such advantage by a child in the case of geology, nor any branch of science except natural history, and of which the most facile for the purpose is botany.

The science cannot be taught properly, or at least exclusively, by lectures. The learner must be accustomed to pull plants to pieces with skill and judgment. Now as plants are always accessible, every child has the skill, and judgment comes by experience and reading. This is why I so strongly advocate botany as the readiest, simplest, and most practical means for training the observing and reasoning faculties. Such training cannot be given by lectures.

NATURAL HISTORY.—STUDY OF ZOOLOGY.

PROF. T. H. HUXLEY, in a Lecture before the Science Classes at the South Kensington Museum, remarks:

Natural History is the name familiarly applied to the study of the properties of such natural bodies as minerals, plants, and animals; the sciences which embody the knowledge man has acquired upon these subjects are commonly termed Natural Sciences, in contradistinction to other, so called "physical," sciences; and those who devote themselves especially to the pursuit of such sciences have been, and are, commonly termed "Naturalists."

Linnæus was a naturalist in this wide sense, and his "Systema Naturæ" was a work upon natural history, in the broadest acceptation of the term; in it, that great methodizing spirit embodied all that was known in his time of the distinctive characters of minerals, animals, and plants. But the enormous stimulus which Linnæus gave to the investigation of nature soon rendered it impossible that any one man should write another "Systema Naturæ," and extremely difficult for any one to become a naturalist such as Linnæus was.

Great as have been the advances made by all the three branches of science, of old included under the title of natural history, there can be no doubt that zoölogy and botany have grown in an enormously greater ratio than mineralogy; and hence, as I suppose, the name of "natural history" has gradually become more and more definitely attached to these prominent divisions of the subject, and by "naturalist" people have meant more and more distinctly to imply a student of the structure and functions of living beings.

However this may be, it is certain that the advance of knowledge has gradually widened the distance between mineralogy and its old associates, while it has drawn zoölogy and botany closer together; so that of late years it has been found convenient (and indeed necessary) to associate the sciences which deal with vitality and all its phenomena under the common head of "biology;" and the biologists have come to repudiate any blood-relationship with their foster-brothers, the mineralogists.

Certain broad laws have a general application throughout both the animal and the vegetable worlds, but the ground common to these kingdoms of nature is not of very wide extent, and the multiplicity of details is so great, that the student of living beings finds himself obliged to devote his attention exclusively either to the one or the other. If he elects to study plants, under any aspect, we know at once what to call him; he is a botanist, and his science is botany. But if the investigation of animal life be his choice, the name generally applied to him will vary, according to the kind of animals he studies, or the particular phenomena of animal life to which he confines his attention. If the study of man is his object he is called an anatomist, or a physiologist, or an ethnologist; but if he dissects animals, or examines into the mode in which their functions are performed, he is a comparative anatomist or comparative physiologist. If he turns his attention to fossil animals, he is a palæontologist. If his mind is more particularly directed to the description, specific discrimination, classification, and distribution of animals, he is termed a zoölogist.

For the purposes of the present discourse, however, I shall recognize none of these titles save the last, which I shall employ as the equivalent of botanist, and I shall use the term zoölogy as denoting the whole doctrine of animal life, in contradistinction from botany, which signifies the whole doctrine of vegetable life.

Employed in this sense, zoölogy, like botany, is divisible into three great but subordinate sciences, morphology, physiology, and distribution, each of which may, to a very great extent, be studied independently of the other.

Zoölogical morphology is the doctrine of animal form or structure. Anatomy is one of its branches, development is another; while classification is the expression of the relations which different animals bear to one another, in respect of their anatomy and their development.

Zoölogical distribution is the study of animals in relation to the terrestrial conditions which obtain now, or have obtained at any previous epoch of the earth's history.

Zoölogical physiology, lastly, is the doctrine of the functions or actions of animals. It regards animal bodies as machines impelled by certain forces, and performing an amount of work, which can be expressed in terms of the ordinary forces of nature. The final object of physiology is to deduce the facts of morphology on the one hand, and those of distribution on the other, from the laws of the molecular forces of matter.

My own impression is, that the best model for all kinds of training in physical science is that afforded by the method of teaching anatomy, in use in the medical schools. This method consists of lectures, demonstrations, and examinations.

The object of lectures is, in the first place, to awaken the attention and excite the enthusiasm of the student; and this, I am sure, may be effected to a far greater extent by the oral discourse and by the personal influence of a respected teacher, than in any other way. Secondly, lectures have the double use of guiding the student to the salient points of a subject, and at the same time forcing him to attend to the whole of it, and not merely to that part which takes his fancy. And lastly, lectures afford the student the opportunity of seeking explanations of those difficulties which will arise in the course of his studies. * *

But for a student to derive the utmost possible value from lectures, several precautions are needful.

I have a strong impression that the better a discourse is, as an oration, the worse it is as a lecture. The flow of the discourse carries you on without proper attention to its sense; you drop a word or a phrase, you lose the exact meaning for a moment, and while you strive to recover yourself, the speaker has passed on.

The practice I have adopted of late years, in lecturing to students, is to condense the substance of the hour's discourse into a few dry propositions, which are read slowly and taken down from dictation: the reading of each being followed by a free commentary, expanding and illustrating the proposition, explaining terms, and removing any difficulties that may be attackable in that way, by diagrams made roughly, and seen to grow under the lecturer's hand. In this manner you, at any rate, insure the co-operation of the student to a certain extent. He cannot leave the lecture-room entirely empty if the taking of notes is enforced: and a student must be preternaturally dull and mechanical, if he can take notes and hear them properly explained, and yet learn nothing.

What books shall I read? is a question constantly put by the student to the teacher. My reply usually is, "None: write your notes out carefully and fully; strive to understand them thoroughly; come to me for the explanation of anything you cannot understand; and I would rather you did not distract your mind by reading."

But, however good lectures may be, and however extensive the course of reading by which they are followed up, they are but accessories to the great instrument of scientific teaching—demonstration. If I insist unweariedly, nay fanatically, upon the importance of physical science as an educational agent, it is because the study of any branch of science, if properly conducted, appears to me to fill up a void left by all other means of education.

All that literature has to bestow may be obtained by reading and by practical exercise in writing and in speaking; but I do not exaggerate when I say, that none of the best gifts of science are to be won by these means. On the contrary, the great benefit which a scientific education bestows, whether as training or as knowledge, is dependent upon the extent to which the mind of the student is brought into immediate contact with facts—upon the degree to which he learns the habit of appealing directly to Nature, and of acquiring through his senses concrete images of those properties of things, which are, and always will be, but approximatively expressed in human language.

The great business of the scientific teacher is, to imprint the fundamental, irrefragable facts of his science, not only by words upon the mind, but by sensible impressions upon the eye, and ear, and touch of the student, in so complete a manner that every term used, or law enunciated, should afterwards call up vivid images of the particular structural, or other facts which furnished the demonstration of the law, or the illustration of the term. * *

What is the purpose of primary intellectual education? I apprehend that its first object is to train the young in the use of those tools wherewith men extract knowledge from the ever-shifting succession of phenomena which pass before their eyes; and that its second object is to inform them of the fundamental laws which have been found by experience to govern the course of things, so that they may not be turned out into the world naked, defenceless, and a prey to the events they might control.

A boy is taught to read his own and other languages, in order that he may have access to infinitely wider stores of knowledge than could ever be opened to him by oral intercourse with his fellow men; he learns to write that his means of communication with the rest of mankind may be indefinitely enlarged, and that he may record and store up the knowledge he acquires. He is taught elementary mathematics, that he may understand all those relations of number and form, upon which the transactions of men, associated in complicated societies, are built, and that he may have some practice in deductive reasoning.

But, in addition, primary education endeavors to fit a boy out with a certain equipment of positive knowledge. He is taught the great laws of morality; the religion of his sect; so much history and geography as will tell him where the great countries of the world are, what they are, and how they have become thus.

The system is excellent, so far as it goes. But if I regard it closely, a curious reflection arises. I suppose that, fifteen hundred years ago, the child of any well-to-do Roman citizen was taught just these same things; reading and writing in his own, and, perhaps, the Greek tongue; the elements of mathematics; and the religion, morality, history, and geography current in his time. Furthermore, I do not think I err in affirming, that, if such a Christian Roman boy, who had finished his education, could be transplanted into one of our public schools, and pass through its course of instruction, he would not meet with a single unfamiliar line of thought; amidst all the new facts he would have to learn, not one would suggest a different mode of regarding the universe from that current in his own time And yet surely there is some great difference between the civilization of the fourth century and that of the nineteenth, and still more between the intellectual habits and tone of thought of that day and of this.

Modern civilization rests upon physical science; take away her gifts to our own country, and our position among the leading nations of the world is gone to-morrow; for it is physical science only, that makes intelligence and moral energy stronger than brute force.

Physical science, its methods, its problems, and its difficulties, will meet the poorest boy at every turn, and yet we educate him in such a manner that he shall enter the world as ignorant of the existence of the methods and facts of science as the day he was born. The modern world is full of artillery; and we turn out our children to do battle in it, equipped with the shield and sword of a gladiator.

It is my firm conviction that the only way to remedy it is, to make the elements of physical science an integral part of primary education. I have endeavored to show you how that may be done for that branch of science which it is my business to pursue; and I can but add, that I should look upon the day when every school-master throughout this land was a centre of genuine, however rudimentary, scientific knowledge, as an epoch in the history of the country.

SIR CHARLES LYELL, the eminent geologist, in his evidence, remarks substantially respecting physical science and natural history:

These branches of knowledge have been ignored in our educational system. Their neglect in the schools is owing to the fact that the chief rewards, prizes, and honors of the universities are given for proficiency in other studies, where preparatory work must be done in the schools, and all the instruction in these institutions is based on the idea that these pupils are all to go to the universities, whereas a majority of these pupils do not, but pass at once into business without any special preparation therefor. The teachers, too, of the public schools, have all been trained in the universities, and are themselves ignorant of the sciences which touch all the mechanical and mercantile interests of the state, and do not appreciate even their educational worth.

The universities do not, relatively, give as much attention to these subjects now as they did two hundred years ago, and this grew out of the revolution in the academical system at the time of the Reformation, when the separate colleges, each with an inadequate teaching force, were forced each to undertake the whole work of the university, and they have not since been able to keep up with the progress of the new sciences.

If these subjects are ever to go into the universities with advantage, the grammar of each must be matured in the schools. The amount may be moderate, but the elements must be mastered, and the tastes for one or more developed, if it is afterward to be pursued with a strong option.

The time can be gained by diminishing the quantity of Latin and Greek, except with those to whom these branches are to be specialties.

NATURAL HISTORY.

Richard Owen, F. R. S., and Superintendent of the Natural History Department of the British Museum, and author of works of high reputation in comparative anatomy, paleontology, and kindred subjects, in his evidence before the Public School Commission, says:

I have long felt a great desire to see the time arrive when our larger educational establishments for youths, particularly the great public schools, to which the sons of the wealthy and territorial families in England are sent, should possess the means of imparting to them the elements and methods of natural history, either in botany or zoology, or both.

I am not aware of any arrangement or organization for a systematic instruction of the youths in those elements and methods at our great public schools, nor that they receive the smallest amount of natural history instruction. If I were to select a particular group it would be the governing and legislative class, which, from the opportunities I have had of hearing remarks in conversation or debate, appears to be least aware of the extent of many departments of natural history science, of the import of its generalizations, and especially of its use in disciplining the mind, irrespective of its immediate object of making known the different kinds of animals, plants, or minerals. Grammar and classics, arithmetic and geometry, may be the most important disciplinary studies; we know the faculties of the mind they are chiefly calculated to educe; but they fail in bringing out those which natural history science more especially tends to improve. I allude now to the faculty of accurate observation, of the classification of facts, of the coördination of classes or groups; the arrangement of topics, for example, in their various orders of importance in the mind, giving to a writer or public speaker improved powers of classifying all kinds of subjects. Natural history is essentially a classificatory science. Order and method are the faculties which the elements and principles of the science are best adapted to improve and to educe.

Natural history would represent, zoology, relating to animals; botany, to plants; mineralogy, to minerals. Of course it branches off into collateral subjects, as anatomy; some knowledge of that, indeed, would be necessarily acquired, because boys could not learn the classification of animals without getting some idea of the general principles of their construction. And so with regard to the classification of plants. Zoology and botany are both based on anatomy, or that which relates to the construction of animals and plants. With respect to geology, that would be too complex, and not necessary, I apprehend, for the main aim in view. All the disciplinary effect would be got by the lectures on natural history, which might be limited to one of the three classes, but I would recommend the branch relating to vegetables or animals.

Chemistry is a good subject to be taught. It induces, in the first instance, dexterity and nicety in the use of the fingers, besides caution in making a comparison of experimental results. No doubt there are useful faculties of the mind brought out well by chemistry. At the same time, there are the practical difficulties of the apparatus for experiments, and if I were to refer to age in regard to the teaching of natural science, I should be induced to raise the age in reference to the applicability of chemistry as a disciplinary science. The elder boys would be more careful and less mischievous, and therefore more likely to obtain a benefit from the laboratory in chemical teaching, without being so subject to its accompanying evils.

The modern languages I should be disposed to place first in importance, natural history next, chemistry last. With regard to astronomy and mechanics, these, I think, are already in part provided for in the illustrations of geometrical and algebraic teaching.

I think the uniform practice in the continental schools where natural sciences are taught is, to begin with natural history. The students learn the elements of zoology or botany first before going to chemistry and higher sciences.

I should be sorry to advocate natural history to the entire exclusion of chemistry or natural philosophy; but I do not think it would be wise to omit natural history in any great school and consider chemistry as its substitute chiefly on the grounds before stated; and partly for this reason, that in every community of two hundred or more youths, there must be some few, the constitution of whose minds is specially adapted to the study of natural history, to the work of observation and classification, who, consequently, are impelled by innate aptitude to that kind of study, but who are not at present afforded the slightest opportunity of working their minds in that way; so that it may happen that the faculty or gift for natural history, if it be not actually destroyed by exclusive exercise in uncongenial studies, is never educed. What is the result? in all our great natural history movements, we have looked in vain, since the death of Sir Joseph Banks, for any man having a sufficient standing in the country to fraternize with us, to understand us, to help us in debate or council on questions most vital to the interests of natural history. It has often occured to me to ask how such should be the case, and my answer has been, that in the education of the noblemen and gentlemen, the great landed proprietors of England, of those destined to take part in the legislation and government of the country, there has been complete absence of systematic imparting of the elements of natural history, no demonstration of the nature and properties of plants and animals, no indication of the aims and importance of natural history, no training of the faculties for which it affords the healthiest exercise; consequently they have not been educed. I cannot doubt that this must have been the effect of the present restricted system. There must have been, by nature, many Sir Joseph Banks since he died, but they have been born, have grown up, and passed away without working out their destined purpose; their peculiar talent has never been educed, their attention has never been turned to those studies, but they have been wholly devoted to classics. It must be remembered that minds of this class are usually very averse to classical studies and mere exercises of memory and composition; they never take to them; they get through them as well or ill as they can, doing little or nothing to the purpose, and they fail to achieve that for which they are naturally fitted from the want of having their special faculties educed. I consider it a loss to the nation that, in our great educational establishments for youths, there should be no arrangements for giving them the chance of knowing something of the laws of the living world and how they are to be studied.

Prof. Jukes, in opening the business of the Geological Section of the British Association, over which he presided at Cambridge, remarks:

"The natural sciences are now considered as worthy of study by those who have a taste for them, both in themselves and as a means of mental training and discipline. In my time, however, no other branches of learning were recognized than classics and mathematics, and I have with shame to confess that I displayed but a truant disposition with respect to them, and too often hurried from the tutor's lecture room to the river or field to enable me to add much to the scanty store of knowledge I had brought up with me. Had it not been, then, for the teaching of Professor Sedgwick in geology, my time would have been wasted."

So that it was just the accident, so to speak, of one short course on a branch of natural history, grafted through an old bequest upon the main studies of his university, that led Professor Jukes to his appreciation of the method of study and value of the science which owes so much to his labors. I could also, with your permission, adduce a higher authority on the main point, and that is Baron Cuvier's, who, in the preface to the first edition of his elementary book on Natural History, expresses himself as follows:

"The habit necessarily acquired in the study of natural history, of mentally classifying a great number of ideas, is one of the advantages of this science, which is seldom spoken of, and which, when it shall have been generally introduced into the system of common education, will perhaps become the principal one; it exercises the student in that part of logic which is termed method, as the study of geometry does in that which is called syllogism, because natural history is the science which requires the most precise methods, as geometry is that which demands the most rigorous reasoning. Now, this art of method, when once well acquired, may be applied with infinite advantage to studies the most foreign to natural history. Every discussion which supposes a classification of facts, every research which requires a distribution of matters, is performed after the same manner, and he who has cultivated this science merely [illegible] is surprised at the facility [illegible] affords for disentangling all kinds of [illegible]. I [illegible] sufficiently extensive to satisfy the most [illegible] calm the most agitated [illegible] enmity and hatred. Once [illegible] irresistibly regulated by Providence, how weak and [illegible] appear those causes which it has been pleased to [illegible] upon the will of man. How astonishing to behold so many [illegible] happiness and that [illegible] the very traces of which a few [illegible] these ideas have always been [illegible] and if I have endeavored by [illegible] it is because, in my [illegible] the want of occupation [illegible] age."

ON THE STUDY OF PHYSIOLOGY.

Prof. George E. Paget, in a Lecture before the British Medical Association at Cambridge in 1864, advocates this study as follows:

The advantages to be expected from the general teaching of Physiology may be grouped in two classes: the first including such as would tend to the promotion of the science, the second, such as would belong to the students.

By a wider diffusion of the knowledge of physiology its progress would be accelerated, as that of any other science would, by the increased number of the competent observers of its facts. * * * But a large advantage, and one which I think physiology needs more than any other science does, would arise in this—that the communication would be easier, which is now so difficult, between those who are engaged in it and those who especially devote themselves to other sciences that might assist it. Almost every process in the living body involves the exercise of mechanical and chemical—perhaps, also, of electrical—forces whose effects are mingled with those of the more proper vital force; and although this special force may modify, and in some sort vail, the effects of the others, yet must their effects be reckoned and allowed for, in nearly every case we have to study. Therefore, the complete solution of any new physiological problem must require such a master of all these sciences of dead and living matter as cannot now, I believe, be found, or else it must have the coöperation of many workers, each skilled in some simple science, and able to communicate with all the rest. * * *

I believe that a moderate acquaintance with the principles of physiology, acquired in early life, would benefit a man, with regard to both his body and his mind; and that it would do this by guiding him in the maintenance and improvement of health, by teaching him the true economy of his powers, whether mental or corporal, by providing worthy materials for thought, and by cultivating peculiar modes, and suggesting peculiar ends, of thinking. * * *

I would not have its teaching limited to a bare declaration of the use and exact fitness of each part or organ of the body. This, indeed, should not be omitted; for there are noble truths in the simplest demonstrations of the fitness of parts for their simplest purposes, and no study has been made more attractive than this by the ingenuity, the acuteness, and eloquence of its teachers. But I would go beyond this, and, striving, as I said before, to teach general truths as well as the details of science, I would try to lead the mind to the contemplation of those *general* designs, from which it might gather the best lessons for its own guidance. * * *

It must be an object of all education to supply, in early life, those studies from which, in later years, may arise reflections that may mingle happily with the business-thoughts of common days; that may suggest to the reason, or even to the imagination, some hidden meaning, some future purpose, some noble end, in the things about us. Reflections such as these, being interwoven with our common thoughts, may often bring to our life a tone of joy which its general aspect will not wear; like brilliant threads shot through the texture of some sombre fabric, giving lustre to its darkness.

PHYSICS, CHEMISTRY, PHYSIOLOGY, GERMAN.

H. W. ACKLAND, Regius Professor of Medicine at Oxford, and teacher of Anatomy and Physiology in Christ Church College, said:

We are living in a period of transition with reference to the educational question; and if I look back to the time when I became Reader in Anatomy at Oxford, which was in the year 1845, I should say that it was a very rare thing for any person to come with his mind previously directed to scientific pursuit. In the seventeen years which have elapsed, that state of things has somewhat changed. We find that boys come to the University from several schools quite able to appreciate the opportunities of scientific study which they have now in Oxford; and I can see that the younger men who have left the universities with enlarged tastes in these directions, who are not destined to follow scientific pursuits, are beginning to carry away with them into the country, into different situations to which they may go, and, among others, to private schools, scientific knowledge, sometimes of a very precise kind; and so in that way necessarily these tastes will be gradually disseminated, and react on the universities.

About fifteen or sixteen years ago, Professor Jewett and Dr. Stanley, who were then young tutors, and engaged in some extensive inquiries with regard to the promotion of a wider sphere of education in Oxford, asked my opinion what scientific studies should be introduced. The opinion which I gave them after much reflection was this, that there were three fundamental subjects, which unquestionably ought to be required before young men were allowed to pursue any other; and that they might not take honours or pass except they showed proficiency in these three. These were, Physics, so-called, Chemistry, and Physiology, to use the word physiology in a very general sense. These three subjects were so fundamental to all other organic sciences, and so necessary to the study of most branches of scientific knowledge, that all pass man ought to be required to pass in those subjects, before they were allowed to take other more detailed ones, such as geology, mineralogy, or zoology, or many other "ologies," which might be mentioned. Accordingly, wisely or unwisely, that became the law at Oxford, and at Oxford now no person can pass in a scientific subject, except he passes in two at least of these which we held to be educationally fundamental.

Just as I said fifteen years ago, Physiology, Physics, and Chemistry should be the fundamental subjects at the universities, so I think that those who come to the universities, if they really are to progress, and if their education is to be carried on systematically, had much better come trained, as far as boys should be trained in such subjects at all, in Physics, in Chemistry, or in both, before they come to the university, and then they would either carry on those subjects to a higher pitch at the university where the greatest opportunities ought to be found, or they might pass on to the biological or other sciences as they pleased.

I may add, generally, that I should value all knowledge of these physical sciences very little indeed unless it was otherwise than bookwork. If it is merely a question of getting up certain books, and being able to answer certain book questions, that is merely an exercise of the memory of a very useless kind. The great object, though not the sole object of this training, should be to get the boys to observe and understand the action of matter in some department or another; and although I am perfectly aware that what is called practical knowledge, if merely manipulatory, in any subject whatever, is a humble thing enough; yet, on the other hand, I must say that the utmost amount of knowledge on these subjects without that practical and experimental knowledge is to most persons nearly as useless. You want the combination of the two; and for youths, I value very little the mere acquisition of a quantity of book facts on these subjects. I want them to see and know the things, and in that way they will evoke many qualities of the mind which the study of these subjects is intended to develop, and which are not evoked by the study of the classics; but I am not at all prepared to say that those same qualities or any similar qualities may not be evoked by other means, although not by the classics. I mean to put this reservation in stating my opinion, that I cannot think that the study of the physical sciences is, as I sometimes hear it stated, absolutely necessary for everybody. There may be good men, as good as anybody else, without it. It is perhaps unnecessary to make that reservation, but I am in the habit of hearing the subject spoken of sometimes as though a man must be an inferior man because he is unacquainted with any branch of physical science. I do not hold that at all, because observation, practical habits, manual dexterity, and many such things are acquired in a high degree by persons who have no scientific knowledge.

I thought it so necessary to the general national education, that the power of studying Physiology in its highest departments, and in the best possible manner, should exist in Oxford, that I labored with other persons to enable the University to possess the means of that study, which it had not to a similar extent before, and which should be pursued with the greatest advantage at the universities; but the study of precise Physics, and a knowledge of Chemistry are becoming more necessary to understand Physiological works, so that the older Physiologists, unless they are able to bring up their knowledge of these subjects to the present level, will be left entirely behind. Therefore, it would further the cause of education if they were first learnt at schools, so that those who came up to the universities should have the opportunity of studying Physiology as an advanced subject if they came up with the necessary preliminary knowledge.

I must say as a physician, that being my main business now, that I really view with alarm the way in which boys are pressed at school. I must ask your forgiveness for introducing an extraneous subject, but I say truly that I view with alarm the pressure which is put on good boys. I am afraid it remains to be seen fifty years hence what the effect of this system on the *physique* of the country will be. Children are surrounded by every means of cramming things into their brains, and a number of us are seeing how we can force in something more in their very earliest years. I confess I think this a matter of much anxiety.

I feel confident that a great deal of the learning by heart is useless; the physical sciences exercises the memory in a higher degree than anything else; at least anything with which I am acquainted. If you go over a book of human descriptive anatomy, the quantity of facts which have to be mastered are astonishing. I do not believe that boys' tastes are refined or their higher intellectual qualities called out by learning to gallop over so many lines of Virgil or Homer. It is an effort of memory, and has no corresponding effect on the character; I believe by the other study they would acquire a certain quantity of useful knowledge, and the faculties of attention and memory are quite as much exercised. They are taught to think; which no amount of learning by heart can teach.

It is a great advantage to a scientific man now-a-days to know German, and a great disadvantage not to know it. I know it imperfectly, so I know the disadvantage. I think that the possession of an additional language in early life is so invaluable to a youth, that I would take the chance cf his obtaining his science at a later period, when he would have the further aid of German in acquiring it.

PHYSICS AS A MEANS IN MENTAL DEVELOPMENT.

PROFESSOR JOHN TYNDALL, in a Lecture at the Royal Institution of Great Britain, on the study of Physics, remarks:—

The term Physics, as made use of in the present Lecture, refers to that portion of natural science which lies midway between astronomy and chemistry. The former, indeed, is Physics applied to masses of enormous weight, while the latter is Physics applied to atoms and molecules. The subjects of Physics proper are, therefore, those which lie nearest to human perception:—the light and heat of the sun, color, sound, motion, the loadstone, electrical attractions and repulsions, thunder and lightning, rain, snow, dew, and so forth. The senses of Man stand between these phenomena, between the external world, and the world of thought. He takes his facts from Nature and transfers them to the domain of mind: he looks at them, compares them, observes their mutual relations and connexions, and thus brings them clearer and clearer before his mental eye, until, finally, by a kind of inspiration, he alights upon the cause which unites them. This is the last act of the mind, in this centripetal direction, in its progress from the multiplicity of facts to the central cause on which they depend. But, having guessed the cause, he is not yet contented: he now sets out from his centre and travels in the other direction: he sees that if his guess be true, certain consequences must follow from it, and he appeals to the law and testimony of experiment whether the thing is so. Thus he completes the circuit of thought,—from without inward, from multiplicity to unity, and from within outward, from unity to multiplicity. He traverses the line between cause and effect both ways, and, in so doing, calls all his reasoning powers into play. The mental effort involved in these processes may be justly compared to those exercises of the body which invoke the co-operation of every muscle, and thus confer upon the whole frame the benefits of healthy action.

A few days ago a Master of Arts, who is still a young man, and therefore the recipient of a modern education, stated to me that for the first twenty years of his life he had been taught nothing regarding Light, Heat, Magnetism, or Electricity: twelve of these years had been spent among the ancients, all connexion being thus severed between him and natural phenomena. Now, we cannot, without prejudice to humanity, separate the present from the past. The nineteenth century strikes its roots into the centuries gone by, and draws nutriment from them The world cannot afford to lose the record of any great deed or utterance; for such deeds and such utterances are prolific throughout all time. We cannot yield the companionship of our loftier brothers of antiquity,—of our Socrates and Cato,—whose lives provoke us to sympathetic greatness across the interval of two thousand years. As long as the ancient languages are the means of access to the ancient mind, they must ever be of priceless value to humanity; but it is as the avenues of ancient thought, and not as the instruments of modern culture, that they are chiefly valuable to Man. Surely these avenues might be kept open without demanding such sacrifices as that above referred to. We have conquered and possessed ourselves of continents of land, concerning which antiquity knew nothing; and if new continents of thought reveal themselves to the exploring human spirit, shall we not possess them also? In these latter days, the study of Physics has given us glimpses of the methods of Nature which were quite hidden from the ancients, and it would be treason to the trust committed to us, if we were to sacrifice the hopes and aspirations of the Present out of deference to the Past.

The study of Physics, as already intimated, consists of two processes, which are complementary to each other—the tracing of facts to their causes, and the logical advance from the cause to the fact. In the former process, called *induction*, certain moral qualities come into play. It requires patient industry, and an humble and conscientious acceptance of what Nature reveals. The first condition of success is an honest receptivity and a willingness to abandon all preconceived notions, however cherished, if they be found to contradict the truth.

The second process in physical investigation is *deduction*, or the advance of the mind from fixed principles to the conclusions which flow from them. The rules of logic are the formal statement of this process, which, however, was practised by every healthy mind before ever such rules were written. In the study of Physics induction and deduction are perpetually married to each other. The mind observes—it seizes facts of their peculiarities of form, and tries to unite them by their essences; having effected this, it at once deduces, and thus checks its induction. Here the grand difference between the methods at present followed and those of the ancients becomes manifest. They were one-sided in these matters: they omitted the process of induction, and substituted conjecture for observation. They did not seem to have possessed sufficient patience to watch the slow processes of Nature, and to make themselves acquainted with the conditions under which she operates. Ignorant of these conditions, they could never penetrate her secrets nor master her laws. This mastery not only enables us to turn her forces against each other, so as to protect ourselves from their hostile action, but makes them our slaves. By the study of Physics we have opened to us treasures of power of which antiquity never dreamed: we lord it over Matter, but in so doing we have become better acquainted with the laws of Mind; for to the mental philosopher external Nature furnishes a screen against which the human spirit projects its own image, and thus becomes capable of self-inspection.

Thus, then, as a means of intellectual culture, the study of Physics exercises and sharpens observation: it brings the most exhaustive logic into play: it compares, abstracts, and generalizes, and provides a mental imagery admirably suited to these processes. The strictest precision of thought is everywhere enforced, and prudence, foresight, and sagacity are demanded. By its appeals to experiment, it continually checks itself, and builds upon a sure foundation.

Thus far we have regarded the study of Physics as an agent of intellectual culture; but like other things in Nature, it subserves more than a single end. The colors of the clouds delight the eye, and, no doubt, accomplish moral purposes also; but the self-same clouds hold within their fleeces the moisture by which our fields are rendered fruitful. The sunbeams excite our interest and invite our investigation; but they also extend their beneficent influences to our fruits and corn, and thus accomplish, not only intellectual ends, but minister, at the same time, to our material necessities. And so it is with scientific research. While the love of science is a sufficient incentive to the pursuit of science, and the investigator, in the prosecution of his inquiries, is raised above all material considerations, the results of his labors may exercise a potent influence upon the physical condition of Man.

As an instrument of intellectual culture, the study of Physics is profitable to all: as bearing upon special functions, its value, though not so great, is still more tangible. Why, for example, should Members of Parliament be ignorant of the subjects concerning which they are called upon to legislate? In this land of practical physics, why should they be unable to form an independent opinion upon a physical question? Why should the senator be left at the mercy of interested disputants when a scientific question is discussed, until he deems the nap a blessing which rescues him from the bewilderments of the committee-room? The education which does not supply the want here referred to, fails in its duty to England. With regard to our working people, in the ordinary sense of the term working, the study of Physics would, I imagine, be profitable, not only as a means of mental culture, but also as a moral influence to woo these people from pursuits which now degrade them. * * *

The world was built in order: it is the visual record of its Maker's logic, and to us have been trusted the will and power to grapple with the mighty argument. Descending for a moment from this high ground to considerations which lie closer to us as a nation—as a land of gas and furnaces, of steam and electricity: as a land which science, practically applied, has made great in peace and mighty in war:—I ask you whether this "land of old and just renown," has not a right to expect from her institutions a culture which shall embrace something more than declension and conjugation? They can place physical science upon its proper basis; they can check the habit, now too common, of regarding science solely as an instrument of material prosperity; they can dwell with effect upon its nobler use, and raise the national mind to the contemplation of it as the last development of that "increasing purpose" which runs through the ages and widens the thoughts of men.

J. M. WILSON ON TEACHING NATURAL SCIENCE.

Prof. Wilson, Assistant Master in Mathematics and Natural Science in Rugby School, who has been eminently successful in introducing Natural Science into this great public school, has published an admirable Essay (McMillan's Liberal Studies) on teaching this subject in schools.

FAILURE OF THE LATIN AND GREEK DISCIPLINE.

The astonishing ignorance of Latin and Greek, or at least of all the finer part of this knowledge on which so much stress is laid; and the ignorance—which is less surprising, if not less lamentable—of everything else, with which so many boys leave most schools, has been dwelt on again and again. Is it remediable or is it not? Is it due to the carelessness and inability of masters; to the inherent unsuitability of the subjects taught; to neglected early education and bad preparatory schools; or to the illiterate tone of the society in which boys are brought up; to excessive novel reading and devotion to games; or to the great fact that the majority of the species are incapable of learning much? Partly perhaps to them all; certainly to an ill-advised course of study. For at present, literature, or the studies which are subordinate to it, has almost a monopoly: and on language the great majority of boys fail in getting much hold. The exclusive study of language at schools weakens the fibre of those who have genius for it, fails to educate to the best advantage the mass who have fairly good sense but no genius for anything, but obscures and depresses the few who have special abilities in other lines; and it precludes the possibility of learning much besides. So that even at a school where classics are well taught, where the masters are able and skillful, and the boys industrious, not very much is learnt. It was said of a Scotchman who enjoyed a cheap reputation for hospitality, "that he kept an excellent table, but put verra leetle upon it." This epitomizes the report of the Publics School Commission: the schools are excellent, but they teach "verra leetle." And this is the less excusable because the experience of the best foreign schools is showing the advantage of introducing greater variety into the course of study. A wider net is cast; fewer minds repose in unstirred apathy; more varied abilities are recognized; there is less over-estimation of special branches of knowledge; and, what is more important, the variety is itself a stimulus.

DIGNITY AND GRANDEUR OF SCIENTIFIC KNOWLEDGE.

We count a man educated in proportion to the exactness, width, and nobleness of his ideas. What is needed to elevate a man's intellectual nature is not that he should be an encyclopædia, but that he should have great ideas. And these must be based on knowledge. They do not, indeed, always accompany knowledge. Great ideas may be got by various studies, and all studies may be pursued by men who fail to gain great ideas. I know men with a wide and microscopic knowledge of history who know nothing of the love of freedom, of national justice, of the progress of the world, of the power of genius and will;—men who are theologians by profession, whose thoughts still revolve in the narrowest circle of earthly prejudices;—scholars indifferent alike to literature and learning. And so there are scientific men who combine poverty of intellect with width of knowledge. A botanist may be as foolish as a crest collector; a geologist, and even an astronomer, may, perhaps, be a pedant not more ennobled by the sphere of his thoughts than a cathedral spider is affected by the majesty of his abode; but I will venture to assert, that the great thoughts and principles which are to be gained only by scientific knowledge are not only of a quality that increases the dignity of a man's mind, are not only intrinsically glorious and elevating, but are not inferior, whether we regard their effect on the intellect or on the imagination, to those which may be reached by other studies. And I am not speaking only of the discoverers in science. There is a special charm, indeed, and stimulating power in original research, in exploring new regions; but there are splendid ideas, magnificent points of view, which, though others have reached them before, yet to attain is a lifelong pleasure. The ordinary tourist may climb to some well-worn spot in the Alps, he may ascend by the beaten track, he may even be carried there, and yet he will be richly rewarded by the view that unfolds itself before his eyes. He may not feel the glow of health, the buoyant soul of the first mountaineer that stood there; but he will see what he will remember for ever; he will get more than a new sensation, he will have enlarged his soul. So to be the first to climb, as Newton did, with solitary steps, to the untrodden heights from which he gazed on the solar system spread out at his feet, can never again be given to mortal man; but to attain the knowledge, to see the magnificent orderliness and progress, to be profoundly impressed with the infinities of space and time which it silently suggests, is to have gained a treasure that lasts as long as life will last. So also geology has a sublimity of its own, slowly reached by many steps and much toil. And, above all, the great ideas of natural law and harmonious adjustment can only be obtained by patient study in the fields of science; and are they not priceless to those who have in any degree won them? Who can contemplate our globe in this orderly system of the universe, with all the delicate adjustments that astronomy reveals, and all the splendid mechanism of the heavens—contemplate our atmosphere, with all its mechanical, chemical, and physical properties—the distant sun darting its light and heat and power on the globe, and fostering all the varied beautiful animal and vegetable life, giving rise to winds and showers and fruitful seasons, and beauties of form and richness of color, filling our hearts with food and gladness: who can know something of the inexorable sequences, see something of the felicitous combination of all the varied forces of nature that are employed,—and not feel impressed and awed by the view; not feel that he is in the presence of a Power and Wisdom that as far transcends the power and wisdom of man as the universe surpasses a watch in magnitude!

'To see in part
That all, as in some piece of art,
Is toil, coöperant to an end,'

is to see that which he who sees it not is as incapable of estimating as the deaf man is of judging of music, or the blind of enjoying the glories of a sunset. Such are some of the ideas which crown science, and it is not granted to us to attain them except by slow degrees. Step by step must the growing mind approach them: and to exclude from our schools the preliminary steps is to debar from the attainment of such ideas all whose leisure in after-life is so curtailed that they can never break ground in any fresh subject for thought or labor.

EXACTNESS AND POWER OF SCIENCE.

Science is not only knowledge, but it is also power. The mind is not only an instrument for advancing science, but, what is more to our present point, science is an instrument for advancing the mind. All that can be said on this point has been said over and over again, and I can contribute nothing except my daily experience that what is said is true. Mill speaks of "the indispensable necessity of scientific instruction, for it is recommended by every consideration which pleads for any high order of intellectual education at all." Science is the best teacher of accurate, acute, and exhaustive observation of what is; it encourages the habit of mind which will rest on nothing but what is true; truth is the ultimate and only object, and there is the ever-recurring appeal to facts as the test of truth. And it is an excellent exercise of memory; not the verbal, formal memory, but the orderly, intelligent, connected, accurate storing up of knowledge. And of all processes of reasoning it stands alone as the exhaustive illustration. It is pre-eminently the study that illustrates the art of thinking. "The processes by which truth is attained," to quote again from Mill, "reasoning and observation have been carried to their greatest known perfection in the physical sciences." In fact the investigations and reasoning of science, advancing as it does from the study of simple phenomena to the analysis of complicated actions, form a model of precisely the kind of mental work which is the business of every man, from his cradle to his grave; and reasoning, like other arts, is best learnt by practice and familiarity with the highest models. Science teaches what the power and what the weakness of the senses is; what evidence is, and what proof is. There is no characteristic of an educated man so marked as his power of judging of evidence and proof. The precautions that are taken against misinterpretation of what is called the evidence of the senses, and against wrong reasoning, and tracing the thoughts backward down to the ground of belief; the constant verification of theories; the candid suspension of judgment where evidence is still wanting; that wedding of induction and deduction into a happy unity and completeness of proof, the mixture of observation and ratiocination—are precisely the mental processes which all men have to go through somehow or other in their daily business, and which every human being who is capable of forming an intelligent opinion on the subject sees would be better done if men had familiarized themselves with the models of these processes which are furnished by science. I do not mean that a boy knows he is doing all these things; but he *is* doing them visibly. And when he applies the analysis of logic to the processes of his mind, he will find that he has been thinking logically, though unconsciously so.

Thinking is learnt by thinking; and it is my strongest conviction, as it is my daily experience, that boys can and do learn to think,—learn all the varied operations of the mind we sum up in that word,—by the study of science. A more vigorous school of thought, and a habit of mind less inclined to the faults of dogmatism on the one side, and deference to authority on the other, with more reverence for truth, and more confidence in knowledge, is the natural product of scientific instruction. * * *

Moreover, taking education in its broad sense as the training of all the powers that go to make up the man, I would point out how much science contributes towards increasing the powers of the senses. All science is based, some one has said, on the fact that we have great curiosity, and very weak eyes; and science gives men a marvelous extension of the power and range of the acuteness of those eyes. "Eyes and no eyes" is the title of an old story; and it scarcely seems too strong a way of marking the difference between the powers of perception of a cultivated naturalist, and those of the ordinary gentleman ignorant of everything in nature. To the one the stars of heaven, and the stones on earth, the forms of the hills, and the flowers in the hedges, are a constant source of that great and peculiar pleasure derived from intelligence. And day by day do I see how boys increase their range of sight, and that not only of the things we teach them to see, but they outrun us, and discover for themselves. And the power, once gained, can never be lost. I know many instances of boys whose eyes were opened at school by the ordinary natural science lectures, who have since found great pleasure and constant occupation in some branch of scientific study.

And I would add that whatever may be the defects of a purely literary education, which I obviously do not intend to discuss, they cannot be remedied by mathematics alone. Mathematics are so often thought, by those who are ignorant of them, to be the key to all reasoning, and to be the perfection of training, and so often spoken of by proficients in them as mysteries that it is worth the labor of half a lifetime to understand, that it is worth while to remember that after all they are only compendious and very limited methods of applying deductive reasoning, assisted by symbols, to questions of which the data are, or are supposed to be, extremely precise. They no more *teach* reasoning in the ordinary sense of the word than traveling by railway fits a man for exploring in Central Africa. And hence, while I set a very high value on arithmetic and geometry in all education, it is not because they supply the place of science in any sense, but on entirely different grounds. They form the language of science, however, and are indispensable to its study.*

DEFICIENCY OF A MERELY SCIENTIFIC CURRICULUM.

The vague impression that reverence, faith, belief in the unseen and the spiritual, and in truths derived from individual consciousness, are diminished, as superstitions are diminished, by the school of science, must not be met by an off-hand denial that there is any foundation for it; for constant dealing with nature and exercise of the intellect alone, as contrasted with humanity and the exercise of the moral feelings, unquestionably tend to exclude men from the highest thoughts. All that may be said about the dignity of the study of created things—and this is a truth that often needs to be enforced—must not make its advocates lose sight of the relation of this study to others. The wish of many men of science that it should form the staple of liberal education, if gratified, would probably lead to a loss of gracefulness and unconscious art in style, which characterizes nations which study the classics, and moreover would produce a peculiar and dangerous one-sidedness, which may be distinctly seen in many individual cases. In such cases, their constant study of one kind of evidence raises a secret disinclination and real inaptitude, for the time being, to accept evidence of a different kind, and induces them openly or tacitly, to depreciate and distrust it. They are constantly tempted to consider the finer mental and religious sensibilities as useless, and as if they proved nothing. They are facts, of course, but facts which verge on fancies; and they have acquired a distaste for this kind of reflection, and something of contempt for its value in others. They seem to have raised a wall between themselves and certain truths; to have dazzled their eyes by a study of the glaring truths of external nature, and to be for the time incapable of discerning the dimmer but nobler truths of the soul and its relations. They distrust what may not be referred to the mechanism of organization, and disbelieve that the reason alone can be the source of real truths. Yet all this does not tend to prove that science should be excluded from schools, but that it should not form the staple of our education.

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* It is singular that the Mathematical Tripos at Cambridge is so unscientific, and the Natural Science Tripos at Oxford so unmathematical. At Cambridge a man may get the highest honors in mathematics and natural philosophy and have never seen a crystal, a lens, an air pump, or a thermometer: and at Oxford a man may get his First in natural science without knowing the Binomial Theorem or the solution of a triangle. Surely these are mistakes.

TIME—SUBJECTS AND METHODS OF SCIENTIFIC STUDY.

Two hours a week, with the same time for preparation out of school, is the time given at Rugby, and is as much as I would wish to see the subject started with. I do not doubt however that ultimately it will be thought better to increase this, in the upper part of the school, to three or four hours a week. This seems too little to ask, and the advocates of science outside schools will disallow so petty a claim. But there is very little experience of the working of scientific teaching in great schools; there is at present so slight a recognition of science in schools on the part of the Universities, that any public school which gave up much time to science, would be hopelessly out of the race at the Universities. And this would be suicidal. If the reform is on sound principles, let science gain a footing only, and a friendly struggle for existence will point out whether the foreigner can be naturalized, and flourish.

Next as to the parts of science to be taught, and the methods of teaching; and the discussion of these must be given at some length.

It is important to distinguish at once, and clearly, between *scientific information* and *training in science*. 'In other words,' to quote from the Report of the Committee appointed by the Council of the British Association to consider the best means for promoting Scientific Education in Schools, 'between general literary acquaintance with scientific facts, and the more minute and accurate knowledge that may be gained by studying the facts and methods at first hand, under the guidance of a competent teacher. Both of these are valuable; it is very desirable, for example, that boys should have some general information about the ordinary phenomena of nature, such as the simple facts of Astronomy, of Geology, of Physical Geography, and of elementary Physiology. On the other hand, the scientific habit of mind, which is the principal benefit resulting from scientific training, and which is of incalculable value, whatever be the pursuits of after life, can better be attained by a thorough knowledge of the facts and principles of one science, than by a general acquaintance with what has been said or written about many. Both of these should co-exist, we think, at any school which professes to offer the highest liberal education.'

There may be used in the lower part of the school, some work on Physical Geography, embracing the elements of the subjects above-named; and it will be found extremely convenient to introduce short courses of lectures on such subjects as these, even in the higher parts of the school. For since new boys are perpetually coming, and it is impossible that a new course of lectures on Botany, or on Mechanics, should be started in every division of the school at the beginning of every term, without requiring the number of natural science masters to be almost indefinitely increased, there must be some collecting place, a class in which the new boys shall accumulate until they are numerous enough to form a body to enter on the regular course. This must be a class in which Physical Geography, including if the master likes, the elements of Geology and Astronomy, is taught. In such classes as these the ideas of boys are expanded; fresh books are opened to them; and some will avail themselves of the opening, and learn a good deal about the subjects spoken of. but the value is more literary than scientific; and even after the most careful teaching will be found disappointing. In lecturing on such subjects as Geology, Astronomy, or Physical Geography, the master never can be sure that the ideas he has so clearly in his own mind are seized by all his boys. There seems to be a deficiency in powers of conception on the part of very many boys. Theorists may say what they please, but it is true that the act of the mind in forming a conception is difficult to excite. There is a marvelous, truly marvelous, want of imagination in many minds, want of power to form and keep in view a distinct image of the thing reasoned or spoken about. It is not only want of attention, but there seems to be a total separation in some minds between words and things, perhaps the result, in part, of early teaching; so that the knowledge apparently gained is sometimes wholly unsound.

Meaning of Mental Training.

The mental training to be got from the study of science is the main reason for its introduction into schools. It is with reference to this that the subjects of instruction, and the methods of instruction, must be chosen. It is important therefore, that what is meant by *mental training* should be distinctly understood. Training is the cultivation bestowed on any set of faculties with the object of developing them. It is possible to train the body, and to train the mind, for a great variety of purposes, some very foolish ones. But in all cases the training consists in *doing*. If you wish to swim, you must go into the water and swim as best you can: if you wish to box, there is no way of learning but by boxing: if you wish to study music or drawing, you must play and sing or draw: and thus in educating others you must make them *do* whatever you intend them to learn to do, and select subjects and circumstances in which *doing* is most facilitated. Now, laying aside out of consideration the accumulation of statistical information, and all kinds of education except intellectual, it is clear that this ultimately divides itself into the training of the artistic and logical faculties. And the logical faculties are of two kinds. It is by a logical faculty that we are able to understand other men's thoughts and apprehend new ideas. The cultivated, intelligent, imaginative mind is one in which this receptive faculty is strong. Nothing so marks the uneducated man as his dullness, his incapacity, in understanding what you say to him, if you depart in the slightest degree from the range of his daily thoughts. For the ordinary intercourse of men of education, for the spread and fertility of active thought, this faculty of intelligence is invaluable. Again, it is by a logical faculty that the mind deals with things and the relations of things. The mind which is thoughtful rather than receptive or imaginative, which studies phenomena, be they in mental philosophy, in politics, or in natural science, with a view to elicit and establish the true relations that exist among these phenomena, is the type of the mind in which the logical faculty of investigation is well trained. Nothing so marks the imperfectly educated man as his helplessness when dealing with facts instead of men, and his insecurity both in arriving at truth from them, and in judging of the validity of the conclusions of others. For the advance of thought, on all subjects which require thought, this faculty of investigation is indispensable. Probably no study will cultivate one of these faculties and wholly neglect the others, but all studies aim principally at one or the other of these. A study of the classical languages, for example, is an artistic exercise, and moreover it educates the receptive faculties in a manner in which no other study educates them. The study of a language and literature not our own is the best preparation for entering into the thoughts of others; but even when best taught and best learned it can only be a very imperfect exercise in logic, for it omits nearly the whole of the logic of induction. The study of science, on the other hand, while not without its influence on even the artistic powers, and exercising in a remarkable degree the powers of intelligence of a certain kind, deals mainly with the faculty of investigation, and trains the mind to ponder and reflect on the significance of facts. And the methods of these studies are in many respects precisely the same. Models and exercises are given by the one; models and exercises by the other. Thucydides must be read, and Latin prose must be written, by the student of form and style; and the man who would cultivate his powers of thought must read his Newton, and study Experimental Physics. And as the student of Thucydides and Plato is likely to gain in clearness and brilliance of expression, and an insight into history and humanity, in intelligent and ready apprehension of the thoughts of others, in versatility and in polish; so the student of natural science is likely to bring with him to the study of philosophy, or politics, or business, or his profession, whatever it may be, a more active and original mind, a sounder judgment, and a clearer head, in consequence of his study. A good style perhaps may be got by reading and writing; thinking is learnt by thinking. And therefore that method of giving scientific instruction is best which most stimulates *thought;* and those subjects which afford the best illustrations of the best method ought to be selected for instruction in schools.

Different Methods of Teaching Science.

Now there are two methods of teaching science: one, the method of investigation; the other, the method of authority. The first starts with the concrete and works up to the abstract; starts with facts and ends with laws: begins with the known, and proceeds to the unknown; the second starts with what we call the principles of the science; announces laws and includes the facts under them: declares the unknown and applies it to the known. The first demands faith, the second criticism. Of the two, the latter is the easier, and the former by far the better. But the latter is seen in most text-books, and is the method on which many unscientific people ground their disapproval of science. What this former method is, and why it is the better, will be seen by the following remarks.

In the first place, then, *knowledge must precede science:* for science is nothing else but systematized experience and knowledge. In its extreme applications this principle is obvious enough: it would be absurd to teach boys classification from minerals, or the power of experimental science by an investigation into the organic bases. A certain broad array of facts must pre-exist before scientific subjects without that practical and experimental knowledge is to most persons nearly as useless. You want the combination of the two; and for youths, I value very little the mere acquisition of a quantity of book facts on these subjects. I want them to see and know the things, and in that way they will evoke many qualities of the mind which the study of these subjects is intended to develop, and which are not evoked by the study of the classics; but I am not at all prepared to say that those same qualities or any similar qualities may not be evoked by other means, although not by the classics. I mean to put this reservation in stating my opinion, that I cannot think that the study of the physical sciences is, as I sometimes hear it stated, absolutely necessary for everybody. There may be good men, as good as anybody else, without it. It is perhaps unnecessary to make that reservation, but I am in the habit of hearing the subject spoken of sometimes as though a man must be an inferior man because he is unacquainted with any branch of physical science. I do not hold that at all, because observation, practical habits, manual dexterity, and many such things are acquired in a high degree by persons who have no scientific knowledge.

I thought it so necessary to the general national education, that the power of studying Physiology in its highest departments, and in the best possible manner, should exist in Oxford, that I labored with other persons to enable the University to possess the means of that study, which it had not to a similar extent before, and which should be pursued with the greatest advantage at the universities; but the study of precise Physics, and a knowledge of Chemistry are becoming more necessary to understand Physiological works, so that the older Physiologists, unless they are able to bring up their knowledge of these subjects to the present level, will be left entirely behind. Therefore, it would further the cause of education if they were first learnt at schools, so that those who came up to the universities should have the opportunity of studying Physiology as an advanced subject if they came up with the necessary preliminary knowledge.

I must say as a physician, that being my main business now, that I really view with alarm the way in which boys are pressed at school. I must ask your forgiveness for introducing an extraneous subject, but I say truly that I view with alarm the pressure which is put on good boys. I am afraid it remains to be seen fifty years hence what the effect of this system on the *physique* of the country will be. Children are surrounded by every means of cramming things into their brains, and a number of us are seeing how we can force in something more in their very earliest years. I confess I think this a matter of much anxiety.

I feel confident that a great deal of the learning by heart is useless; the physical sciences exercises the memory in a higher degree than anything else; at least anything with which I am acquainted. If you go over a book of human descriptive anatomy, the quantity of facts which have to be mastered are astonishing. I do not believe that boys' tastes are refined or their higher intellectual qualities called out by learning to gallop over so many lines of Virgil or Homer. It is an effort of memory, and has no corresponding effect on the character; I believe by the other study they would acquire a certain quantity of useful knowledge, and the faculties of attention and memory are quite as much exercised. They are taught to think; which no amount of learning by heart can teach.

It is a great advantage to a scientific man now-a-days to know German, and a great disadvantage not to know it. I know it imperfectly, so I know the disadvantage. I think that the possession of an additional language in early life is so invaluable to a youth, that I would take the chance of his obtaining his science at a later period, when he would have the further aid of German in acquiring it.

PHYSICS AS A MEANS IN MENTAL DEVELOPMENT.

PROFESSOR JOHN TYNDALL, in a Lecture at the Royal Institution of Great Britain, on the study of Physics, remarks:—

The term Physics, as made use of in the present Lecture, refers to that portion of natural science which lies midway between astronomy and chemistry. The former, indeed, is Physics applied to masses of enormous weight, while the latter is Physics applied to atoms and molecules. The subjects of Physics proper are, therefore, those which lie nearest to human perception:—the light and heat of the sun, color, sound, motion, the loadstone, electrical attractions and repulsions, thunder and lightning, rain, snow, dew, and so forth. The senses of Man stand between these phenomena, between the external world, and the world of thought. He takes his facts from Nature and transfers them to the domain of mind: he looks at them, compares them, observes their mutual relations and connexions, and thus brings them clearer and clearer before his mental eye, until, finally, by a kind of inspiration, he alights upon the cause which unites them. This is the last act of the mind, in this centripetal direction, in its progress from the multiplicity of facts to the central cause on which they depend. But, having guessed the cause, he is not yet contented: he now sets out from his centre and travels in the other direction: he sees that if his guess be true, certain consequences must follow from it, and he appeals to the law and testimony of experiment whether the thing is so. Thus he completes the circuit of thought,—from without inward, from multiplicity to unity, and from within outward, from unity to multiplicity. He traverses the line between cause and effect both ways, and, in so doing, calls all his reasoning powers into play. The mental effort involved in these processes may be justly compared to those exercises of the body which invoke the co-operation of every muscle, and thus confer upon the whole frame the benefits of healthy action.

A few days ago a Master of Arts, who is still a young man, and therefore the recipient of a modern education, stated to me that for the first twenty years of his life he had been taught nothing regarding Light, Heat, Magnetism, or Electricity: twelve of these years had been spent among the ancients, all connexion being thus severed between him and natural phenomena. Now, we cannot, without prejudice to humanity, separate the present from the past. The nineteenth century strikes its roots into the centuries gone by, and draws nutriment from them The world cannot afford to lose the record of any great deed or utterance; for such deeds and such utterances are prolific throughout all time. We cannot yield the companionship of our loftier brothers of antiquity,—of our Socrates and Cato,—whose lives provoke us to sympathetic greatness across the interval of two thousand years. As long as the ancient languages are the means of access to the ancient mind, they must ever be of priceless value to humanity; but it is as the avenues of ancient thought, and not as the instruments of modern culture, that they are chiefly valuable to Man. Surely these avenues might be kept open without demanding such sacrifices as that above referred to. We have conquered and possessed ourselves of continents of land, concerning which antiquity knew nothing; and if new continents of thought reveal themselves to the exploring human spirit, shall we not possess them also? In these latter days, the study of Physics has given us glimpses of the methods of Nature which were quite hidden from the ancients, and it would be treason to the trust committed to us, if we were to sacrifice the hopes and aspirations of the Present out of deference to the Past.

The study of Physics, as already intimated, consists of two processes, which are complementary to each other—the tracing of facts to their causes, and the logical advance from the cause to the fact. In the former process, called *induction*, certain moral qualities come into play. It requires patient industry, and an humble and conscientious acceptance of what Nature reveals. The first condition of success is an honest receptivity and a willingness to abandon all preconceived notions, however cherished, if they be found to contradict the truth.

The second process in physical investigation is *deduction*, or the advance of the mind from fixed principles to the conclusions which flow from them. The rules of logic are the formal statement of this process, which, however, was practised by every healthy mind before ever such rules were written. In the study of Physics, induction and deduction are perpetually married to each other. The man observes,—he strips facts of their peculiarities of form, and tries to unite them by their essences; having effected this, he at once deduces, and thus checks his induction. Here the grand difference between the methods at present followed, and those of the ancients, becomes manifest. They were one-sided in these matters: they omitted the process of induction, and substituted conjecture for observation. They do not seem to have possessed sufficient patience to watch the slow processes of Nature, and to make themselves acquainted with the conditions under which she operates. Ignorant of these conditions, they could never penetrate her secrets nor master her laws. This mastery not only enables us to turn her forces against each other, so as to protect ourselves from their hostile action, but makes them our slaves. By the study of Physics we have opened to us treasuries of power of which antiquity never dreamed: we lord it over Matter, but in so doing we have become better acquainted with the laws of Mind; for to the mental philosopher material Nature furnishes a screen against which the human spiris projects its own image, and thus becomes capable of self inspection.

Thus, then, as a means of intellectual culture, the study of Physics exercises and sharpens observation: it brings the most exhaustive logic into play: it compares, abstracts, and generalizes, and provides a mental imagery admirably suited to these processes. The strictest precision of thought is everywhere enforced, and prudence, foresight, and sagacity are demanded. By its appeals to experiment, it continually checks itself, and builds upon a sure foundation.

Thus far we have regarded the study of Physics as an agent of intellectual culture; but like other things in Nature, it subserves more than a single end. The colors of the clouds delight the eye, and, no doubt, accomplish moral purposes also; but the self-same clouds hold within their fleeces the moisture by which our fields are rendered fruitful. The sunbeams excite our interest and invite our investigation; but they also extend their beneficent influences to our fruits and corn, and thus accomplish, not only intellectual ends, but minister, at the same time, to our material necessities. And so it is with scientific research. While the love of science is a sufficient incentive to the pursuit of science, and the investigator, in the prosecution of his inquiries, is raised above all material considerations, the results of his labors may exercise a potent influence upon the physical condition of Man.

As an instrument of intellectual culture, the study of Physics is profitable to all: as bearing upon special functions, its value, though not so great, is still more tangible. Why, for example, should Members of Parliament be ignorant of the subjects concerning which they are called upon to legislate? In this land of practical physics, why should they be unable to form an independent opinion upon a physical question? Why should the senator be left at the mercy of interested disputants when a scientific question is discussed, until he deems the nap a blessing which rescues him from the bewilderments of the committee-room? The education which does not supply the want here referred to, fails in its duty to England. With regard to our working people, in the ordinary sense of the term working, the study of Physics would, I imagine, be profitable, not only as a means of mental culture, but also as a moral influence to woo these people from pursuits which now degrade them. * * *

The world was built in order: it is the visual record of its Maker's logic, and to us have been trusted the will and power to grapple with the mighty argument. Descending for a moment from this high ground to considerations which lie closer to us as a nation—as a land of gas and furnaces, of steam and electricity: as a land which science, practically applied, has made great in peace and mighty in war:—I ask you whether this "land of old and just renown," has not a right to expect from her institutions a culture which shall embrace something more than declension and conjugation? They can place physical science upon its proper basis; they can check the habit, now too common, of regarding science solely as an instrument of material prosperity; they can dwell with effect upon its nobler use, and raise the national mind to the contemplation of it as the last development of that "increasing purpose" which runs through the ages and widens the thoughts of men.

J. M. WILSON ON TEACHING NATURAL SCIENCE.

PROF. WILSON, Assistant Master in Mathematics and Natural Science in Rugby School, who has been eminently successful in introducing Natural Science into this great public school, has published an admirable Essay (McMillan's Liberal Studies) on teaching this subject in schools.

FAILURE OF THE LATIN AND GREEK DISCIPLINE.

The astonishing ignorance of Latin and Greek, or at least of all the finer part of this knowledge on which so much stress is laid; and the ignorance—which is less surprising, if not less lamentable—of everything else, with which so many boys leave most schools, has been dwelt on again and again. Is it remediable or is it not? Is it due to the carelessness and inability of masters; to the inherent unsuitability of the subjects taught; to neglected early education and bad preparatory schools; or to the illiterate tone of the society in which boys are brought up; to excessive novel reading and devotion to games; or to the great fact that the majority of the species are incapable of learning much? Partly perhaps to them all; certainly to an ill-advised course of study. For at present, literature, or the studies which are subordinate to it, has almost a monopoly: and on language the great majority of boys fail in getting much hold. The exclusive study of language at schools weakens the fibre of those who have genius for it, fails to educate to the best advantage the mass who have fairly good sense but no genius for anything, but obscures and depresses the few who have special abilities in other lines; and it precludes the possibility of learning much besides. So that even at a school where classics are well taught, where the masters are able and skillful, and the boys industrious, not very much is learnt. It was said of a Scotchman who enjoyed a cheap reputation for hospitality, " that he kept an excellent table, but put verra leetle upon it." This epitomizes the report of the Publics School Commission: the schools are excellent, but they teach " verra leetle." And this is the less excusable because the experience of the best foreign schools is showing the advantage of introducing greater variety into the course of study. A wider net is cast; fewer minds repose in unstirred apathy; more varied abilities are recognized; there is less over-estimation of special branches of knowledge; and, what is more important, the variety is itself a stimulus.

DIGNITY AND GRANDEUR OF SCIENTIFIC KNOWLEDGE.

We count a man educated in proportion to the exactness, width, and nobleness of his ideas. What is needed to elevate a man's intellectual nature is not that he should be an encyclopædia, but that he should have great ideas. And these must be based on knowledge. They do not, indeed, always accompany knowledge. Great ideas may be got by various studies, and all studies may be pursued by men who fail to gain great ideas. I know men with a wide and microscopic knowledge of history who know nothing of the love of freedom, of national justice, of the progress of the world, of the power of genius and will;—men who are theologians by profession, whose thoughts still revolve in the narrowest circle of earthly prejudices;—scholars indifferent alike to literature and learning. And so there are scientific men who combine poverty of intellect with width of knowledge. A botanist may be as foolish as a crest collector; a geologist, and even an astronomer, may, perhaps, be a pedant not more ennobled by the sphere of his thoughts than a cathedral spider is affected by the majesty of his abode; but I will venture to assert, that the great thoughts and principles which are to be gained only by scientific knowledge are not only of a quality that increases the dignity of a man's mind, are not only intrinsically glorious and elevating, but are not inferior, whether we regard their effect on the intellect or on the imagination, to those which may be reached by other studies. And I am not speaking only of the discoverers in science. There is a special charm, indeed, and stimulating power in original research, in exploring new regions; but there are splendid ideas, magnificent points of view, which, though others have reached them before, yet to attain is a lifelong pleasure. The ordinary tourist may climb to some well-worn spot in the Alps, he may ascend by the beaten track, he may even be carried there, and yet he will be richly rewarded by the view that unfolds itself before his eyes. He may not feel the glow of health, the buoyant soul of the first mountaineer that stood there; but he will see what he will remember for ever; he will get more than a new sensation, he will have enlarged his soul. So to be the first to climb, as Newton did, with solitary steps, to the untrodden heights from which he gazed on the solar system spread out at his feet, can never again be given to mortal man; but to attain the knowledge, to see the magnificent orderliness and progress, to be profoundly impressed with the infinities of space and time which it silently suggests, is to have gained a treasure that lasts as long as life will last. So also geology has a sublimity of its own, slowly reached by many steps and much toil. And, above all, the great ideas of natural law and harmonious adjustment can only be obtained by patient study in the fields of science; and are they not priceless to those who have in any degree won them? Who can contemplate our globe in this orderly system of the universe, with all the delicate adjustments that astronomy reveals, and all the splendid mechanism of the heavens—contemplate our atmosphere, with all its mechanical, chemical, and physical properties—the distant sun darting its light and heat and power on the globe, and fostering all the varied beautiful animal and vegetable life, giving rise to winds and showers and fruitful seasons, and beauties of form and richness of color, filling our hearts with food and gladness; who can know something of the inexorable sequences, see something of the felicitous combination of all the varied forces of nature that are employed,—and not feel impressed and awed by the view; not feel that he is in the presence of a Power and Wisdom that as far transcends the power and wisdom of man as the universe surpasses a watch in magnitude?

'To see in part
That all, as in some piece of art,
Is toil, coöperant to an end,'

is to see that which he who sees it not is as incapable of estimating as the deaf man is of judging of music, or the blind of enjoying the glories of a sunset. Such are some of the ideas which crown science, and it is not granted to us to attain them except by slow degrees. Step by step must the growing mind approach them; and to exclude from our schools the preliminary steps is to debar from the attainment of such ideas all whose leisure in after-life is so curtailed that they can never break ground in any fresh subject for thought or labor.

EXACTNESS AND POWER OF SCIENCE.

Science is not only knowledge, but it is also power. The mind is not only an instrument for advancing science, but, what is more to our present point, science is an instrument for advancing the mind. All that can be said on this point has been said over and over again, and I can contribute nothing except my daily experience that what is said is true. Mill speaks of "the indispensable necessity of scientific instruction, for it is recommended by every consideration which pleads for any high order of intellectual education at all." Science is the best teacher of accurate, acute, and exhaustive observation of what is; it encourages the habit of mind which will rest on nothing but what is true; truth is the ultimate and only object, and there is the ever-recurring appeal to facts as the test of truth. And it is an excellent exercise of memory; not the verbal, formal memory, but the orderly, intelligent, connected, accurate storing up of knowledge. And of all processes of reasoning it stands alone as the exhaustive illustration. It is pre-eminently the study that illustrates the art of thinking. "The processes by which truth is attained," to quote again from Mill, "reasoning and observation have been carried to their greatest known perfection in the physical sciences." In fact the investigations and reasoning of science, advancing as it does from the study of simple phenomena to the analysis of complicated actions, form a model of precisely the kind of mental work which is the business of every man, from his cradle to his grave; and reasoning, like other arts, is best learnt by practice and familiarity with the highest models. Science teaches what the power and what the weakness of the senses is; what evidence is, and what proof is. There is no characteristic of an educated man so marked as his power of judging of evidence and proof. The precautions that are taken against misinterpretation of what is called the evidence of the senses, and against wrong reasoning, and tracing the thoughts backward down to the ground of belief; the constant verification of theories; the candid suspension of judgment where evidence is still wanting; that wedding of induction and deduction into a happy unity and completeness of proof, the mixture of observation and ratiocination—are precisely the mental processes which all men have to go through somehow or other in their daily business, and which every human being who is capable of forming an intelligent opinion on the subject sees would be better done if men had familiarized themselves with the models of these processes which are furnished by science. I do not mean that a boy knows he is doing all these things; but he *is* doing them visibly. And when he applies the analysis of logic to the processes of his mind, he will find that he has been thinking logically, though unconsciously so.

Thinking is learnt by thinking; and it is my strongest conviction, as it is my daily experience, that boys can and do learn to think,—learn all the varied operations of the mind we sum up in that word,—by the study of science. A more vigorous school of thought, and a habit of mind less inclined to the faults of dogmatism on the one side, and deference to authority on the other, with more reverence for truth, and more confidence in knowledge, is the natural product of scientific instruction. * * *

Moreover, taking education in its broad sense as the training of all the powers that go to make up the man, I would point out how much science contributes towards increasing the powers of the senses. All science is based, some one has said, on the fact that we have great curiosity, and very weak eyes; and science gives men a marvelous extension of the power and range of the acuteness of those eyes. "Eyes and no eyes" is the title of an old story; and it scarcely seems too strong a way of marking the difference between the powers of perception of a cultivated naturalist, and those of the ordinary gentleman ignorant of everything in nature. To the one the stars of heaven, and the stones on earth, the forms of the hills, and the flowers in the hedges, are a constant source of that great and peculiar pleasure derived from intelligence. And day by day do I see how boys increase their range of sight, and that not only of the things we teach them to see, but they outrun us, and discover for themselves. And the power, once gained, can never be lost. I know many instances of boys whose eyes were opened at school by the ordinary natural science lectures, who have since found great pleasure and constant occupation in some branch of scientific study.

And I would add that whatever may be the defects of a purely literary education, which I obviously do not intend to discuss, they cannot be remedied by mathematics alone. Mathematics are so often thought, by those who are ignorant of them, to be the key to all reasoning, and to be the perfection of training, and so often spoken of by proficients in them as mysteries that it is worth the labor of half a lifetime to understand, that it is worth while to remember that after all they are only compendious and very limited methods of applying deductive reasoning, assisted by symbols, to questions of which the data are, or are supposed to be, extremely precise. They no more *teach* reasoning in the ordinary sense of the word than traveling by railway fits a man for exploring in Central Africa. And hence, while I set a very high value on arithmetic and geometry in all education, it is not because they supply the place of science in any sense, but on entirely different grounds. They form the language of science, however, and are indispensable to its study.*

DEFICIENCY OF A MERELY SCIENTIFIC CURRICULUM.

The vague impression that reverence, faith, belief in the unseen and the spiritual, and in truths derived from individual consciousness, are diminished, as superstitions are diminished, by the school of science, must not be met by an off-hand denial that there is any foundation for it; for constant dealing with nature and exercise of the intellect alone, as contrasted with humanity and the exercise of the moral feelings, unquestionably tend to exclude men from the highest thoughts. All that may be said about the dignity of the study of created things—and this is a truth that often needs to be enforced—must not make its advocates lose sight of the relation of this study to others. The wish of many men of science that it should form the staple of liberal education, if gratified, would probably lead to a loss of gracefulness and unconscious art in style, which characterizes nations which study the classics, and moreover would produce a peculiar and dangerous one-sidedness, which may be distinctly seen in many individual cases. In such cases, their constant study of one kind of evidence raises a secret disinclination and real inaptitude, for the time being, to accept evidence of a different kind, and induces them openly or tacitly, to depreciate and distrust it. They are constantly tempted to consider the finer mental and religious sensibilities as useless, and as if they proved nothing. They are facts, of course, but facts which verge on fancies; and they have acquired a distaste for this kind of reflection, and something of contempt for its value in others. They seem to have raised a wall between themselves and certain truths; to have dazzled their eyes by a study of the glaring truths of external nature, and to be for the time incapable of discerning the dimmer but nobler truths of the soul and its relations. They distrust what may not be referred to the mechanism of organization, and disbelieve that the reason alone can be the source of real truths. Yet all this does not tend to prove that science should be excluded from schools, but that it should not form the staple of our education.

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* It is singular that the Mathematical Tripos at Cambridge is so unscientific, and the Natural Science Tripos at Oxford so unmathematical. At Cambridge a man may get the highest honors in mathematics and natural philosophy and have never seen a crystal, a lens, an air pump, or a thermometer; and at Oxford a man may get his First in natural science without knowing the Binomial Theorem or the solution of a triangle. Surely these are mistakes.

TIME—SUBJECTS AND METHODS OF SCIENTIFIC STUDY.

Two hours a week, with the same time for preparation out of school, is the time given at Rugby, and is as much as I would wish to see the subject started with. I do not doubt however that ultimately it will be thought better to increase this, in the upper part of the school, to three or four hours a week. This seems too little to ask, and the advocates of science outside schools will disallow so petty a claim. But there is very little experience of the working of scientific teaching in great schools; there is at present so slight a recognition of science in schools on the part of the Universities, that any public school which gave up much time to science, would be hopelessly out of the race at the Universities. And this would be suicidal. If the reform is on sound principles, let science gain a footing only, and a friendly struggle for existence will point out whether the foreigner can be naturalized, and flourish.

Next as to the parts of science to be taught, and the methods of teaching; and the discussion of these must be given at some length.

It is important to distinguish at once, and clearly, between *scientific information* and *training in science*. 'In other words,' to quote from the Report of the Committee appointed by the Council of the British Association to consider the best means for promoting Scientific Education in Schools, 'between general literary acquaintance with scientific facts, and the more minute and accurate knowledge that may be gained by studying the facts and methods at first hand, under the guidance of a competent teacher. Both of these are valuable; it is very desirable, for example, that boys should have some general information about the ordinary phenomena of nature, such as the simple facts of Astronomy, of Geology, of Physical Geography, and of elementary Physiology. On the other hand, the scientific habit of mind, which is the principal benefit resulting from scientific training, and which is of incalculable value, whatever be the pursuits of after life, can better be attained by a thorough knowledge of the facts and principles of one science, than by a general acquaintance with what has been said or written about many. Both of these should co-exist, we think, at any school which professes to offer the highest liberal education.'

There may be used in the lower part of the school, some work on Physical Geography, embracing the elements of the subjects above-named; and it will be found extremely convenient to introduce short courses of lectures on such subjects as these, even in the higher parts of the school. For since new boys are perpetually coming, and it is impossible that a new course of lectures on Botany, or on Mechanics, should be started in every division of the school at the beginning of every term, without requiring the number of natural science masters to be almost indefinitely increased, there must be some collecting place, a class in which the new boys shall accumulate until they are numerous enough to form a body to enter on the regular course. This must be a class in which Physical Geography, including if the master likes, the elements of Geology and Astronomy, is taught. In such classes as these the ideas of boys are expanded, fresh books are opened to them; and some will avail themselves of the opening, and learn a good deal about the subjects spoken of, but the value is more literary than scientific; and even after the most careful teaching will be found disappointing. In lecturing on such subjects as Geology, Astronomy, or Physical Geography, the master never can be sure that the ideas he has so clearly in his own mind are seized by all his boys. There seems to be a deficiency in powers of conception on the part of very many boys. Theorists may say what they please, but it is true that the act of the mind in forming a conception is difficult to excite. There is a marvelous, truly marvelous, want of imagination in many minds, want of power to form and keep in view a distinct image of the thing reasoned or spoken about. It is not only want of attention, but there seems to be a total separation in some minds between words and things, perhaps the result, in part, of early teaching; so that the knowledge apparently gained is sometimes wholly unsound.

Meaning of Mental Training.

The mental training to be got from the study of science is the main reason for its introduction into schools. It is with reference to this that the subjects of instruction, and the methods of instruction, must be chosen. It is important therefore, that what is meant by *mental training* should be distinctly understood. Training is the cultivation bestowed on any set of faculties with the object of developing them. It is possible to train the body, and to train the mind, for a great variety of purposes, some very foolish ones. But in all cases the training consists in *doing*. If you wish to swim, you must go into the water and swim as best you can: if you wish to box, there is no way of learning but by boxing: if you wish to study music or drawing, you must play and sing or draw: and thus in educating others you must make them *do* whatever you intend them to learn to do, and select subjects and circumstances in which *doing* is most facilitated. Now, laying aside out of consideration the accumulation of statistical information, and all kinds of education except intellectual, it is clear that this ultimately divides itself into the training of the artistic and logical faculties. And the logical faculties are of two kinds. It is by a logical faculty that we are able to understand other men's thoughts and apprehend new ideas. The cultivated, intelligent, imaginative mind is one in which this receptive faculty is strong. Nothing so marks the uneducated man as his dullness, his incapacity, in understanding what you say to him, if you depart in the slightest degree from the range of his daily thoughts. For the ordinary intercourse of men of education, for the spread and fertility of active thought, this faculty of intelligence is invaluable. Again, it is by a logical faculty that the mind deals with things and the relations of things. The mind which is thoughtful rather than receptive or imaginative, which studies phenomena, be they in mental philosophy, in politics, or in natural science, with a view to elicit and establish the true relations that exist among these phenomena, is the type of the mind in which the logical faculty of investigation is well trained. Nothing so marks the imperfectly educated man as his helplessness when dealing with facts instead of men, and his insecurity both in arriving at truth from them, and in judging of the validity of the conclusions of others. For the advance of thought, on all subjects which require thought, this faculty of investigation is indispensable. Probably no study will cultivate one of these faculties and wholly neglect the others, but all studies aim principally at one or the other of these. A study of the classical languages, for example, is an artistic exercise, and moreover it educates the receptive faculties in a manner in which no other study educates them. The study of a language and literature not our own is the best preparation for entering into the thoughts of others; but even when best taught and best learned it can only be a very imperfect exercise in logic, for it omits nearly the whole of the logic of induction. The study of science, on the other hand, while not without its influence on even the artistic powers, and exercising in a remarkable degree the powers of intelligence of a certain kind, deals mainly with the faculty of investigation, and trains the mind to ponder and reflect on the significance of facts. And the methods of these studies are in many respects precisely the same. Models and exercises are given by the one; models and exercises by the other. Thucydides must be read, and Latin prose must be written, by the student of form and style; and the man who would cultivate his powers of thought must read his Newton, and study Experimental Physics. And as the student of Thucydides and Plato is likely to gain in clearness and brilliance of expression, and an insight into history and humanity, in intelligent and ready apprehension of the thoughts of others, in versatility and in polish; so the student of natural science is likely to bring with him to the study of philosophy, or politics, or business, or his profession, whatever it may be, a more active and original mind, a sounder judgment, and a clearer head, in consequence of his study. A good style perhaps may be got by reading and writing; thinking is learnt by thinking. And therefore that method of giving scientific instruction is best which most stimulates *thought;* and those subjects which afford the best illustrations of the best method ought to be selected for instruction in schools.

Different Methods of Teaching Science.

Now there are two methods of teaching science: one, the method of investigation; the other, the method of authority. The first starts with the concrete and works up to the abstract; starts with facts and ends with laws: begins with the known, and proceeds to the unknown; the second starts with what we call the principles of the science; announces laws and includes the facts under them: declares the unknown and applies it to the known. The first demands faith, the second criticism. Of the two, the latter is the easier, and the former by far the better. But the latter is seen in most text-books, and is the method on which many unscientific people ground their disapproval of science. What this former method is, and why it is the better, will be seen by the following remarks.

In the first place, then, *knowledge must precede science:* for science is nothing else but systematized experience and knowledge. In its extreme applications this principle is obvious enough: it would be absurd to teach boys classification from minerals, or the power of experimental science by an investigation into the organic bases. A certain broad array of facts must pre-exist before scientific methods can be applied.* This order cannot be reversed. And this is illustrated by the profound analogy that exists between the growth of scientific knowledge in an individual and in the world. Generation after generation of men passed away, and the world patiently accumulated experience and observation of facts; and then there sprang up in the world the uncontrollable desire to ascertain the sequences in nature, and to penetrate to the deep-lying principles of natural philosophy. And the same desire is based in the individual on the same kind of experience. Where there is wide knowledge of facts, science of some kind is sure to spring up. After centuries of experience the *Philosophiæ naturalis principia* were published.

And, secondly, this knowledge must be homogeneous with pre-existing knowledge. It is of no use to supply purely foreign facts; they must be such as the learner already knows something of, or be so similar in kind that his knowledge of them is equally secure: such that he can piece them in with his own fragmentary but widening experience. It is to his existing knowledge, and to that alone, that you must dig down to get a sure foundation. And the facts of your science must reach continuously down, and rest securely thereon. Otherwise you will be building a castle in the air. Hence the master's business is to take up the knowledge that already exists; to systematize and arrange it; to give it extension here, and accuracy there; to connect scraps of knowledge that seemed isolated; to point out where progress is stopped by ignorance of facts; and to show how to remedy the ignorance. Rapidly knowledge crystallizes round a solid nucleus; and anything the master gives that is suited to the existing knowledge is absorbed and assimilated into the growing mass: and if he is unwise and impatient enough (as I have been scores of times) to say something which is to him perhaps a truth most vivid and suggestive, but for which his boys are unripe, he will see them, if they are really well trained, reject it as the cock despised the diamond among the barley (and the cock was quite right), or still worse, less wise than the cock, swallow it whole as a dead and choking formula.

On these grounds then, in addition to other obvious ones, Botany and Experimental Physics claim to be the standard subjects for the scientific teaching at schools. In both there pre-exists some solid and familiar knowledge. Both can so be taught as to make the learner advance from the known to the unknown—from his observations and experiments to his generalizations and laws, and ascend by continuous steps from induction to induction, and never once feel that he is carried away by a stream of words, and is reasoning about words rather than things. The logical processes they involve are admirable and complete illustrations of universal logic, and yet are not too difficult. These considerations mark the inferiority in this respect, of Geology and Physiology, in which the doctrines must far outrun the facts at a boy's command, and which require so much knowledge before the doctrines can be seen to be well founded. And these considerations exclude Chemistry, as an elementary subject at least, since there is so little pre-existing knowledge in the learner's mind on which the foundations can be laid. On all grounds the teaching of Chemistry should follow that of Experimental Physics.

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* This truth has been entirely lost sight of in teaching elementary geometry. The extreme repulsiveness of Euclid to almost every boy is a complete proof, if indeed other proofs were wanting, that the ordinary methods of studying geometry in use at preparatory and public schools are wholly erroneous. To this I can do no more than allude here, as being my conviction after considerable experience,—a conviction which has overcome every possible prejudice to the contrary. It is much to be hoped that before long the teaching of practical geometry will precede the teaching of the science of geometry.

Unless this method of investigation is followed, the teaching of science may degenerate, with an amazing rapidity, into cramming. To be crammed is to have words and formulæ given before the ideas and laws are realized. Geology and Chemistry are frightfully crammable. But Botany and Experimental Physics are by no means so easy to cram. What they might become with bad text-books and a bad teacher, I cannot, indeed, say; but it is a very important consideration. For it is possible to teach even Botany and Experimental Physics with exquisite perverseness, so as to deprive them of all their singular advantages as subjects for elementary training in science. It is possible to compel the learning the names of the parts of a flower before the condition of existence of a name, viz. that it is seen to be wanted, is fulfilled; to cumber the learner with a terminology that is unspeakably repulsive when given too soon; given before the induction which justifies the name has been gone through; to give the principles of classification before a sufficient acquaintance with species has called out the ideas of resemblance and difference, and has shown the necessity of classification; to give theories of typical form when it seems a wild and grotesque romance; to teach, in fact, by the method of authority. And this may be done by truly scientific men, fully believing that this is the true and only method. Witness Adrien Jussieu's "Botanique."

The true method is assuredly to begin by widening for your boys the basis of facts, and instantly to note uniformities of a low order, and let them hazard a few generalizations.

Specimen Lesson in Botany.

Suppose then your class of thirty or forty boys before you, of ages from thirteen to sixteen, as they sit at their first botanical lesson; some curious to know what is going to happen, some resigned to anything; some convinced that it is all a folly. You hand round to each boy several specimens, say of the Herb Robert, and taking one of the flowers, you ask one of them to describe the parts of it. "Some pink leaves" is the reply. "How many?" "Five." "Any other parts?" "Some little things inside." "Anything outside?" "Some green leaves." "How many?" "Five." "Very good. Now pull off the five green leaves outside, and lay them side by side; next pull off the five pink leaves, and lay them side by side: and now examine the little things inside. What do you find?" "A lot of little stalks or things." "Pull them off and count them:" they find ten. Then show them the little dust-bags at the top, and finally the curiously constructed central column, and the carefully concealed seeds. By this time all are on the alert. Then we resume: the parts in that flower are, outer green envelope, inner colored envelope, the little stalks with dust bags, and the central column with the seeds. Then you give them all wall flowers: and they are to write down what they find: and you go round and see what they write down. Probably some one has found six "*storks*" inside his wall flower, and you make him write on the black-board for the benefit of the class the curious discovery, charging them all to note any such accidental varieties in future; and you make them very minutely notice all the structure of the central column. Then you give them all the common pelargonium and treat it similarly; and by the end of the hour they have learnt one great lesson, the existence of the four floral whorls, though they have yet not heard the name.

Next lesson-time they come in looking more in earnest, and you give them single stocks and white alyssum, which they discover to be wonderfully like the wall flower; and you have a lot of flowers of vegetable marrow, some of which are being passed round while you draw two of them on the board. The difference is soon discovered; and you let them guess about the uses of the parts of the flower. The green outer leaves protect it in the bud; the central organ is for the seeds; but what is the use of the others. Then you relate stories of how it was found out what the use of the dust-bags is: how patient Germans lay in the sun all day to wait for the insects coming: and how the existence of a second rare specimen of some foreign tree was found out in Paris, by its long-widowed spouse in the Jardin des Plantes at last producing perfect seeds. A little talk about bees, and moths, and midges, and such creatures, finding out what they have seen, and your second lecture is over.

In the third lecture you take the garden geranium, and beg them to examine it very closely to see if it is symmetrical. Several will discover the unsymmetrical outer green leaves; one or two will discover the hollow back of the stem: then the pelargonium, and its more visible unsymmetry; then the common tropæolum: in each of which they find also the same parts, and count and describe them: and lastly the tropæolum Canariense, with its grotesque irregularity: and they are startled to find that the curious-looking flower they knew so well is constructed on the same type, and is called by the same name; and by the end of the lesson they have learned something of irregular flowers, as referred to regular types,—something of continuity in nature.

So in succession, for I cannot give more detail, you lead them through flowers where the parts cohere, as in the campanula, through plants deficient or odd, through roses, and mignonette, and honeysuckle, and all the simple flowers you can find; till they thoroughly know the scheme on which a simple flower is made. Then you challenge them to a dandelion or daisy: and each has to write down his ideas. Your one or two geniuses will hit it: some will be all wrong, without a shadow of doubt; the majority fairly puzzled. You give them no hint of the solution, tell them to lay it aside; and you give them the little thrift and challenge them to find its seeds, and how they are attached. This many will do, and pick out the little seed with its long thread of attachment, and then they will go back to their dandelions with the key to the structure; and find its seeds too, and be charmed to discover the remains of its poor outer green envelope, and even its little dust-bags. How proud they are of the discovery! they think they have the key of knowledge now. And then you begin a little terminology,—calyx and sepals, corolla and petals, stamens and pollen, pistil and stigma, and so on; and test their recollection of the forms of all the flowers they have examined. Then you notice the spiral arrangement of leaves on a twig of oak, or thorn, or willow, and the internodes; and the over-lapping of the sepals of the rose and Herb Robert; the alternance of the parts; and finally they work out the idea, that the floral whorls grow on the stem, and are a sort of depressed spiral of leaves with the internodes suppressed. A few monstrosities and pictures are shewn, and the grand generalization is made; the pistils are re-examined with fresh interest to test the theory; and all their old knowledge is raked up once more. Then, too, the value of the theory is criticised; and a lesson of caution is learnt.

Then a step forward is made towards classification, by cohesion and adhesion of parts; and the floral schedule is worked; and so step by step to fruits, and leaves, and stems, and roots, and the wondrous modification of parts for special uses, as in climbing plants; and the orchids, which are a grand puzzle till a series of pictures from Darwin step in to explain the use of the parts and plan of the flower. Then some chemistry of the plant is introduced with some experiments, and the functions of all the organs are discussed. And lastly, strict descriptive terms are given, and the rest of the course is occupied by the history and the systems of classification, with constant reference however to the other conceptions that the class has gained.

Such a method as this has many advantages. It is thoroughly scientific, however irregular it may seem, and a professor of Botany may smile or shed tears over it for anything I care; and the knowledge is gained on a sound basis of original observation. Whatever flower a boy sees after a few lessons, he looks at with interest, as modifying the view of flowers he has attained to. He is tempted by his discoveries: he is on the verge of the unknown, and perpetually transferring to the known: all that he sees finds a place in his theories, and in turn reacts upon them, for his theories are growing. He is fairly committed to the struggle in the vast field of observation, and he learns that the test of a theory is its power of including facts. He learns that he must use his eyes, and his reason, and that then he is equipped with all that is necessary for discovering truth. He learns that he is capable of judging of other people's views, and of forming an opinion of his own. He learns that nothing in the plant, however minute, is unimportant; that he must observe truthfully and carefully; that he owes only temporary allegiance to the doctrines of his master, and not a perpetual faith. No wonder that Botany, so taught, is interesting: no wonder that M. Demogeot, who visited some English schools last year at the request of the French Emperor, expressed himself to me as charmed with the vivacity and intelligence of the botanical class of one of my colleagues.*

Very possibly a master might make his boys get up a book on Botany, and learn it in the order in which it stands in the book,—cellules and parenchyme, protoplasm and chlorophyll, stems and medullary rays, petioles and phyllodes, rhizomes and bulbs, hairs and glands, endosmose and exosmose, secretions and excretions, and so on, and so on; and ultimately come to the flower and fruit; and possibly a boy of good digestion might survive it and pass a respectable examination in a year's time. But this is not the aim. And if in this way a greater number of facts could be learned, it would be far inferior to the method of investigation. A master must never forget that his power of teaching facts and principles is far inferior to a willing pupil's power of learning and mastering them. He must inspire his boys, and rely on them: nor will he be disappointed. Those who have in them anything of the naturalist will collect and become acquainted with a large number of species, and follow out the study with care and accuracy; and the mass, to whom an extensive knowledge of species is a very unimportant matter, but who can appreciate a sound method of investigation and proof, will have gained all that they can gain from botanical teaching. And it must be remembered by those who speak of teaching science, and yet have never tried it, that a method which would succeed with a few naturalists, might utterly fail with the mass.

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*The spirit of this method is admirably illustrated in Le Maoût's "Leçons élémentaries de Botanique, fordées sur l'Analyse de 50 Plantes vulgaires."

[illegible]

[illegible]

[illegible] Experimental Physics. [illegible] Chemistry. Mechanics and Acoustics, Heat and Light, Electricity and Magnetism, Hydrostatics, Hydrodynamics, Pneumatics, [illegible] branches of [illegible] in schools, and in [illegible] be guided by the [illegible] from the familiar to the strange, [illegible]. Hence Mechanics and Acoustics must come first. In a year most boys are able to learn the great principles of Statics and Dynamics, and the elements of Mechanism, [illegible] and space, [illegible] arithmetic and the want of [illegible] geometry are the main hindrances in their way [illegible] arithmetic and geometry that are afforded by Mechanics, [illegible] numbers. Arithmetic is [illegible] and by being so [illegible]. In Mechanics also, the [illegible] commonest and simplest forms; and in this respect also this branch of science serves as the best introduction to the other branches.

Hydrostatics and Pneumatics, I think, are the best subjects to take next. [illegible] that could be taught at school is not great; and they may be learnt very thoroughly and exactly, and [illegible] very good illustrations of the principles of the subjects that precede them. Hydrodynamics, Acoustics, and Geometrical Optics will be [illegible] probably beyond the mere elements by those who have special talent for mathematical or experimental investigation, and should I think be in general reserved for University teaching. Physical Optics [illegible] should be excluded from school teaching.

The next year's course should be Heat and the elements of Electricity. By the time boys have reached this stage they are far more able to acquire new subjects than in the previous stages, and are fit to enter on these branches of physics, if they have studied the earlier subjects intelligently. And of all subjects of experimental investigation, Heat seems to me the best for work at schools. Three times I have taken classes in Heat, and with more satisfactory results than in any other subject. The phenomena of Heat are so universal and so familiar; it has so central a position among the physical sciences; its experimental methods are so perfect; it affords such a variety of illustrations of logical processes; that it seems unrivaled as a subject for training in science. And allowing for seventy lectures in the year, it is clear that this year's course will allow of some time being given to Electricity. This may be made an enormous subject, but I apprehend that it will not be worth while to attempt its more difficult branches, but to reserve them for the University and for private study.

I will repeat that a boy can learn, when he knows how to learn, far more than a master can teach; and it is at increasing the boy's power that the master must aim unweariedly. And by combining a voluntary and a compulsory system, giving opportunities for learning something of the higher branches, and insisting on a sound knowledge of the more elementary parts of Physics in which the teaching can be most stimulative and suggestive, all requirements will be met.

The methods of teaching Physics will be different in different hands; they will vary with the knowledge, the enthusiasm, the good sense, the good temper, the practical skill, and the object of the teacher. If the thing to be aimed at is to make them pass a good examination as soon as the subject is read, the best means will be to put a text-book into the hands of every one, and require certain parts of it to be learnt, and to illustrate them in an experimental lecture with explanations. The lecture may be made very clear and good; and this will be an attractive and not difficult method of teaching, and will meet most of the requirements. It fails, however, in one. The boy is helped over all the difficulties; he is never brought face to face with nature and her problems; what cost the world centuries of thought is told him in a minute; his attention, clearness of understanding, and memory are all exercised; but the one power which the study of physical science ought pre-eminently to exercise, and almost to create, the power of bringing the mind into contact with facts, of seizing their relations, of eliminating the irrelevant by experiment and comparison, of groping after ideas and testing them by their adequacy—in a word, of exercising all the active faculties which are required for an investigation in any matter—these may lie dormant in the class while the most learned lecturer experiments with facility and explains with clearness.

Theory and experience alike convince me that the master who is teaching a class quite unfamiliar with scientific method, ought to make his class teach themselves, by thinking out the subject of the lecture with them, taking up their suggestions and illustrations, criticizing them, hunting them down, and proving a suggestion barren or an illustration inapt; starting them on a fresh scent when they are at fault, reminding them of some familiar fact they had overlooked, and so eliciting out of the chaos of vague notions that are afloat on the matter in hand, be it the laws of motion, the evaporation of water, or the origin of the drift, something of order, and concatenation, and interest, before the key to the mystery is given, even if after all it has to be given. Training to think, not to be a mechanic or surveyor, must be first and foremost as his object.

For all classes, except those which are beginning, the union of the two methods is best. If they have once thoroughly learnt that the truths of science are to be got from what they see, and not from the assertions of a master or a text-book, they can never quite forget it, and allow their science to exist in a cloud-world apart from the earth. And undoubtedly the rigid and exact teaching from a book, insuring a complete and formularised and producible knowledge, is very valuable, especially with older classes.

The work out of school for a natural science lecture consists chiefly at first in writing notes on the previous lecture. When the lecture has been discursive, and the method hard to follow, some help may be given by a recapitulation; but in general it may be left to the boys. It is an admirable exercise in composition. To reduce to order the preliminary facts, to bring out the unity in them, to illustrate, to describe, to argue, and that about things in which they are interested, and for which they feel a match, are the very best exercises that can be put before boys. They begin with a helplessness and inanity almost incredible, improve constantly, and end generally by writing these notes very well. And in the higher classes the working of examples and problems may well be thrown in part on the out-of-school hours.

I am fully convinced, and could support my conviction by that of others, that Chemistry is not a good subject for lecture instruction to beginners in science. Laboratory work must precede, in order that a certain degree of familiarity with facts may be acquired before they are analyzed and methodized scientifically. It can be taught, even to young boys, and so can anything else; and it has the advantage of being rather amusing; but as an exercise in reasoning it is very deficient. The notions of force, cause, composition of causes, are too abstruse in this subject for boys to get any hold of. Hence it is, as a matter of fact, accepted as a mass of authoritative dogmas. It is not the conclusiveness but the ingenuity of the proofs that is appreciated. It is of all subjects the most liable to cram, and the most useless, as a branch of training, when crammed. Most of it requires memory, and memory alone. As laboratory work is not likely to form an integral part of school education, Chemistry ought not, I think, to take an early place in the scientific course. It is most desirable, however, that schools should possess laboratories, into which boys of some talent may be drafted, and there prepared for the profitable attendance on good chemical lectures in the higher part of the school.

Geology is a popular and attractive subject with boys, but it lies outside the subjects which best illustrate scientific method. The largeness of the ideas in it; the great inferences from little facts, as they seem to boys; the wide experience of scenery, and rocks, and fossils, and natural history, which it seems to require; the very unfinished condition of it; are all reasons which make its advocates enthusiastic, but unfit it for the staple of school teaching. Nevertheless, the value of it on other grounds, such as its interest, its bearing on all kinds of thought, its position as typical of Palætiological sciences, and the opportunities it offers for original investigations in most places, seems to me so high, that I think it ought to be introduced parenthetically into the course of instruction in whatever way or place may seem most convenient.

Physiology cannot be taught to classes at school. Nor ought it to be learnt before Physics and Chemistry. A most enthusiastic advocate of Physiology at school talked over the subject with me at Rugby. Practical work, he admitted, was necessary; and that it was impossible. I cannot give my class forty rats on Tuesday, at 9.15, to dissect for an hour, and then put them away till Saturday at the same hour. And the other subjects, if well taught, will have given boys a method and a knowledge which will fit them for acquiring, by reading alone, even if they cannot have practical work, some intelligent acquaintance with the doctrines and facts of Physiology.

SCIENCE WILL NOT RID SCHOOLS OF DUNCES.

The truth is, there is no place like school for having notions of equality driven, by dire experience, out of one's head. There are scores and scores of boys, whom you may educate how you will, and they will know very little when you have done, and know that little ill. There are boys of slipshod, unretentive, inactive minds, whom neither Greek grammar nor natural science, neither schoolmasters nor angels, could convert into active and cultivated men.

STUDIES AND CONDUCT.

EDUCATION IN ITS HIGHER ASPECTS AND RELATIONS.

ADDRESS DELIVERED TO THE UNIVERSITY OF ST. ANDREWS, BY JOHN STUART MILL, ON HIS INAUGURATION AS RECTOR. *Extracts.*

JOHN STUART MILL was born in London, May 1805, and received his entire education at home, under the direction of his father, James Mill, the author of the History of the British Empire in India. He obtained a clerkship in the East India House in 1823, and succeeded his father as examiner of Indian Correspondence in 1856, from which post he retired in 1858, when the affairs of the East India Company were transferred to Her Majesty's government. He was first known as a writer by his contributions to the Westminster Review, of which he became joint and afterwards sole proprietor. His 'System of Logic,' published in 1843; 'Essays on Unsettled Questions in Political Economy,' 1844, and 'System of Political Economy, with some of their Applications to Social Science,' 'Essay on Liberty,' 'Parliamentary Reform,' 'Representative Government,' 'Utilitarianism,' 'Comté and Positivism,' 'Sir William Hamilton's Philosophy,' 'The Subjection of Woman,'—place him among the profoundest thinkers and ablest writers of the age. He was elected to parliament in 1865, but was defeated in the general election of 1869. Mr. Carlyle in an invitation to the writer of this note to meet Mr. Mill at his house to tea in 1835, remarked—"You will meet the best educated man in this town, and no thanks to our Universities for this production."

EDUCATION IN ITS LARGER AND NARROWER SENSE.

EDUCATION, in its largest sense, is one of the most inexhaustible of all topics; and of all many-sided subjects, it is the one which has the greatest number of sides. Not only does it include whatever we do for ourselves, and whatever is done for us by others, for the express purpose of bringing us somewhat nearer to the perfection of our nature; it does more: in its largest acceptation, it comprehends even the indirect effects produced on character and on the human faculties, by things of which the direct purposes are quite different: by laws, by forms of government, by the industrial arts, by modes of social life: nay, even by physical facts not dependent on human will; by climate, soil, and local position. Whatever helps to shape the human being; to make the individual what he is, or hinder him from being what he is not—is part of his education. And a very bad education it often is; requiring all that can be done by cultivated intelligence and will, to counteract its tendencies.

I shall confine myself, however, to education in the narrower sense; the culture which each generation purposely gives to those who are to be its successors, in order to qualify them for at least keeping up, and if possible for raising, the level of improvement which has been attained. Nearly all here present are daily occupied either in receiving or in giving this sort of education: and the part of it which most concerns you at present is that in which you are yourselves engaged—the stage of education which is the appointed business of a national University.

THE PROPER FUNCTION OF AN UNIVERSITY.

Universities are not intended to teach the knowledge required to fit men for some special mode of gaining their livelihood. Their object is not to make skillful lawyers, or physicians, or engineers, but capable and cultivated human beings. It is very right that there should be public facilities for the study of professions. It is well that there should be Schools of Law, and of Medicine, and it would be well if there were schools of engineering, and the industrial arts. The countries which have such institutions are greatly the better for them; and there is something to be said for having them in the same localities, and under the same general superintendence, as the establishments devoted to education properly so called. But these things are no part of what every generation owes to the next, as that on which its civilization and worth will principally depend. They are needed only by a comparatively few, who are under the strongest private inducements to acquire them by their own efforts; and even those few do not require them until after their education, in the ordinary sense, has been completed. What professional men should carry away with them from an University, is not professional knowledge, but that which should direct the use of their professional knowledge, and bring the light of general culture to illuminate the technicalities of a special pursuit. Men may be competent lawyers without general education, but it depends on general education to make them philosophic lawyers—who demand, and are capable of apprehending, principles, instead of merely cramming their memory with details. And so of all other useful pursuits, mechanical included. Education makes a man a more intelligent shoemaker, if that be his occupation, but not by teaching him how to make shoes; it does so by the mental exercise it gives, and the habits it impresses.

This, then, is what a mathematician would call the higher limit of University education: its province ends where education, ceasing to be general, branches off into departments adapted to the individual's destination in life. The lower limit is more difficult to define. An University is not concerned with elementary instruction: the pupil is supposed to have acquired that before coming here. But where does elementary instruction end, and the higher studies begin? Some have given a very wide extension to the idea of elementary instruction. According to them, it is not the office of an University to give instruction in single branches of knowledge from the commencement.

What the pupil should be taught here (they think), is to methodize his knowledge: to look at every separate part of it in its relation to the other parts, and to the whole; combining the partial glimpses which he has obtained of the field of human knowledge at different points, into a general map, if I may so speak, of the entire region; observing how all knowledge is connected, how we ascend to one branch by means of another, how the higher modifies the lower, and the lower helps us to understand the higher; how every existing reality is a compound of many properties, of which each science or distinct mode of study reveals but a small part, but the whole of which must be included to enable us to know it truly as a fact in Nature, and not as a mere abstraction.

And doubtless this is the crown and consummation of a liberal education: but before we restrict an University to this highest department of instruction—before we confine it to teaching, not knowledge, but the philosophy of knowledge—we must be assured that the knowledge itself has been acquired elsewhere. Those who take this view of the function of an University are not wrong in thinking that the schools, as distinguished from the universities, ought to be adequate to teaching every branch of general instruction required by youth, so far as it can be studied apart from the rest. But where are such schools to be found? Since science assumed its modern character, nowhere: and in these islands less even than elsewhere.

THE SCOTTISH UNIVERSITY AND ENGLISH UNIVERSITY COMPARED.

This ancient kingdom, thanks to its great religious reformers, had the inestimable advantage, denied to its southern sister, of excellent parish schools, which gave, really and not in pretense, a considerable amount of valuable literary instruction to the bulk of the population, two centuries earlier than in any other country. But schools of a still higher description have been, even in Scotland, so few and inadequate, that the Universities have had to perform largely the functions which ought to be performed by schools; receiving students at an early age, and undertaking not only the work for which the schools should have prepared them, but much of the preparation itself. Every Scottish University is not an University only, but a High school, to supply the deficiency of other schools. And if the English Universities do not do the same, it is not because the same need does not exist, but because it is disregarded. Youths come to the Scottish Universities ignorant, and are there taught. The majority of those who come to the English Universities come still more ignorant, and ignorant they go away.

In point of fact, therefore, the office of a Scottish University comprises the whole of a liberal education, from the foundations upwards. And the scheme of your Universities has, almost from the beginning, really aimed at including the whole, both in depth and in breadth. You have not, as the English Universities so long did, confined all the stress of your teaching, all your real effort to teach, within the limits of two subjects, the classical languages and mathematics. You did not wait till the last few years to establish a Natural Science and a Moral Science Tripos. Instruction in both those departments was organized long ago; and your teachers of those subjects have not been nominal professors, who did not lecture: some of the greatest names in physical and in moral science have taught in your Universities and by their teaching contributed to form some of the most distinguished intellects of the last and present centuries. . . .

GENERAL EDUCATION SHOULD BOTH SCIENTIFIC AND LITERARY.

Can any thing deserve the name of a good education which does not include literature and science too? If there were no more to be said than that scientific education teaches us to think, and literary education to express our thoughts, do we not require both? and is not any one a poor, maimed, lop-sided fragment of humanity who is deficient in either? We are not obliged to ask ourselves whether it is more important to know the languages or the sciences. Short as life is, and shorter still as we make it by the time we waste on things which are neither business nor meditation nor pleasure, we are not so badly off that our scholars need be ignorant of the laws and properties of the world they live in, or our scientific men destitute of poetic feeling and artistic cultivation. I am amazed at the limited conception which many educational reformers have formed to themselves of a human being's power of acquisition. The study of science, they truly say, is indispensable: our present education neglects it: there is truth in this too, though it is not all truth: and they think it impossible to find room for the studies which they desire to encourage, but by turning out, at least from general education, those which are now chiefly cultivated. How absurd, they say, that the whole of boyhood should be taken up in acquiring an imperfect knowledge of two dead languages. Absurd indeed: but is the human mind's capacity to learn, measured by that of Eton and Westminster to teach? I should prefer to see these reformers pointing their attacks against the shameful inefficiency of the schools, public and private, which pretend to teach these two languages and do not. I should like to hear them denounce the wretched methods of teaching, and the criminal idleness and supineness, which waste the entire boyhood of the pupils without really giving to most of them more than a smattering, if even that, of the only kind of knowledge which is even pretended, to be cared for. Let us try what conscientious and intelligent teaching can do, before we presume to decide what can not be done.

MODERN LANGUAGES, HISTORY, GEOGRAPHY, SUBORDINATE.

No one can in our age be esteemed a well-instructed person who is not familiar with at least the French language, so as to read French books with ease; and there is great use in cultivating a familiarity with German. But living languages are so much more easily acquired by intercourse with those who use them in daily life; a few months in the country itself, if properly employed, go so much farther than as many years of school lessons; that it is really waste of time for those to whom that easier mode is attainable, to labor at them with no help but that of books and master; and it will in time be made attainable through international schools and colleges, to many more than at present. Universities do enough to facilitate the study of modern languages, if they give a mastery over that ancient language which is the foundation of most of them, and the possession of which makes it easier to learn four or five of the continental languages than it is to learn one of them without it. Again, it has always seemed to me a great absurdity that history and geography should be taught in schools; except in elementary schools for the children of the laboring classes, whose subsequent access to books is limited. Who ever really learnt history and geography except by private reading? and what an utter failure a system of education must be, if it has not given the pupil a sufficient taste for reading to seek for himself those most attractive and easily intelligible of all kinds of knowledge? Besides, such history and geography as can be taught in schools exercise none of the faculties of the intelligence except the memory. An university is indeed the place where the student should be introduced to the philosophy of History; where Professors who not merely know the facts but have exercised their minds on them, should initiate him into the causes and explanation, so far as within our reach, of the past life of mankind in its principal features. Historical criticism also—the tests of historical truth—are a subject to which his attention may well be drawn in this stage of his education. But of the mere facts of history, as commonly accepted, what educated youth of any mental activity does not learn as much as is necessary, if he is simply turned loose into an historical library? What he needs on this, and on most other matters of common information, is not that he should be taught in boyhood, but that abundance of books should be accessible to him.

GREEK AND LATIN LANGUAGES TO BE STUDIED THOROUGHLY.

The only languages, then, and the only literature, to which I would allow a place in the regular curriculum, are those of the Greeks and Romans; and to these I would preserve the position in it which they at present occupy. That position is justified, by the great value, in education, of knowing well some other cultivated language and literature than one's own, and by the peculiar value of those particular languages and literatures.

There is one purely intellectual benefit from a knowledge of languages, which I am specially desirous to dwell on. Those who have seriously reflected on the causes of human error, have been deeply impressed with the tendency of mankind to mistake words for things. Without entering into the metaphysics of the subject, we know how common it is to use words glibly and with apparent propriety, and to accept them confidently when used by others, without ever having had any distinct conception of the things denoted by them. To quote again from Archbishop Whately, it is the habit of mankind to mistake familiarity for accurate knowledge. As we seldom think of asking the meaning of what we see every day, so when our ears are used to the sound of a word or a phrase, we do not suspect that it conveys no clear idea to our minds, and that we should have the utmost difficulty in defining it, or expressing, in any other words, what we think we understand by it. Now it is obvious in what manner this bad habit tends to be corrected by the practice of translating with accuracy from one language to another, and hunting out the meanings expressed in a vocabulary with which we have not grown familiar by early and constant youth.

But besides the advantage of possessing another cultivated language, there is a further consideration equally important. Without knowing the language of a people, we never really know their thoughts, their feelings, and their type of character; and unless we do possess this knowledge, of some other people than ourselves, we remain, to the hour of our death, with our intellects only half expanded. Look at a youth who has never been out of his family circle: he never dreams of any other opinions or ways of thinking than those he has been bred up in; or, if he has heard of any such, attributes them to some moral defect, or inferiority of nature or education. If his family are Tory, he can not conceive the possibility of being a Liberal; if Liberal, of being a Tory. What the notions and habits of a single family are to a boy who has had no intercourse beyond it, the notions and habits of his own country are to him who is ignorant of every other. Those notions and habits are to him human nature itself; whatever varies from them is an unaccountable aberration which he can not mentally realize: the idea that any other ways can be right, or as near an approach to right as some of his own, is inconceivable to him. This does not merely close his eyes to the many things which every country still has to learn from others: it hinders every country from reaching the improvement which it could otherwise attain by itself. . . .

Even as mere languages, no modern European language is so valuable a discipline to the intellect as those of Greece and Rome, on account of their regular and complicated structure. Consider for a moment what grammar is. It is the most elementary part of logic. It is the beginning of the analysis of the thinking process. The principles and rules of grammar are the means by which the forms of language are made to correspond with the universal forms of thought. The distinctions between the various parts of speech, between the cases of nouns, the moods and tenses of verbs, the functions of particles, are distinctions in thought, not merely in words. Single nouns and verbs express objects and events, many of which can be cognized by the senses; but the modes of putting nouns and verbs together, express the relations of objects and events, which can be cognized only by the intellect; and each different mode corresponds to a different relation. The structure of every sentence is a lesson in logic. The various rules of syntax oblige us to distinguish between the subject and predicate of a proposition, between the agent, the action, and the thing acted upon; to mark when an idea is intended to modify or qualify, or merely to unite with, some other idea; what assertions are categorical, what only conditional; whether the intention is to express similarity or contrast, to make a plurality of assertions conjunctively or disjunctively; what portions of a sentence, though grammatically complete within themselves, are mere members or subordinate parts of the assertion made by the entire sentence. Such things form the subject matter of universal grammar; and the languages which teach it best are those which have the most definite rules, and which provide distinct forms for the greatest number of distinctions in thought, so that if we fail to attend precisely and accurately to any of these, we can not avoid committing a solecism in language. In these qualities the classical languages have an incomparable superiority over every modern language, and over all languages, dead or living, which have a literature worth being generally studied. . . .

Human invention has never produced any thing so valuable, in the way both of stimulation and of discipline to the inquiring intellect, as the dialectics of the ancients, of which many of the works of Aristotle illustrate the theory, and those of Plato exhibit the practice. No modern writing comes near to these, in teaching, both by precept and example, the way to investigate truth, on those subjects, so vastly important to us, which remain matters of controversy, from the difficulty or impossibility of bringing them to a directly experimental test. To question all things; never to turn away from any difficulty;

to accept no doctrine either from ourselves or from other people without a rigid scrutiny by negative criticism, letting no fallacy, or incoherence, or confusion of thought, slip by unperceived; above all, to insist upon having the meaning of a word clearly understood before using it, and the meaning of a proposition before assenting to it; these are the lessons we learn from the ancient dialecticians. With all this vigorous management of the negative element, they inspire no scepticism about the reality of truth, or indifference to its pursuit. The noblest enthusiasm, both for the search after truth and for applying it to its highest uses, pervades these writers, Aristotle no less than Plato, though Plato has incomparably the greater power of imparting those feelings to others. In cultivating, therefore, the ancient languages as our best literary education, we are all the while laying an admirable foundation for ethical and philosophical culture. In purely literary excellence—in perfection of form—the preëminence of the ancients is not disputed. In every department which they attempted, and they attempted almost all, their composition, like their sculpture, has been to the greatest modern artists an example, to be looked up to with hopeless admiration, but of inappreciable value as a light on high, guiding their own endeavor.... The secret of the style of the great Greek and Roman authors, is that it is the perfection of good sense. In the first place, they never use a word without a meaning, or a word which adds nothing to the meaning. They always (to begin with) had a meaning; they knew what they wanted to say; and their whole purpose was to say it with the highest degree of exactness and completeness, and bring it home to the mind with the greatest possible clearness and vividness. It never entered into their thoughts to conceive of a piece of writing as beautiful in itself, abstractedly from what it had to express: its beauty must all be subservient to the most perfect expression of the sense. The *curiosa felicitas* which their critics ascribed in a preëminent degree to Horace, expresses the standard at which they all aimed. Their style is exactly described by Swift's definition, "the right words in the right places." Look at an oration of Demosthenes; there is nothing in it which calls attention to itself as style at all; it is only after a close examination we perceive that every word is what it should be, and where it should be, to lead the hearer smoothly and imperceptibly into the state of mind which the orator wishes to produce. The perfection of the workmanship is only visible in the total absence of any blemish or fault, and of any thing which checks the flow of thought and feeling, any thing which even momentarily distracts the mind from the main purpose. But then (as has been well said) it was not the object of Demosthenes to make the Athenians cry out "What a splendid speaker!" but to make them say "Let us march against Philip!" . . .

LIMITATIONS TO CLASSICAL STUDIES.

They should be carried as far as is sufficient to enable the pupil, in after life, to read the great works of ancient literature with ease. Those who have leisure and inclination to make scholarship, or ancient history, or general philology, their pursuit, of course, require much more, but there is no room for more in general education. The laborious idleness in which the school-time is wasted away in the English classical schools deserves the severest reprehension. To what purpose should the most precious years of early life be irreparably squandered in learning to write bad Latin and Greek verses? I do not see that we fore boys. They begin with a helplessness and inanity almost incredible, improve constantly, and end generally by writing these notes very well. And in the higher classes the working of examples and problems may well be thrown in part on the out-of-school hours.

I am fully convinced, and could support my conviction by that of others, that Chemistry is not a good subject for lecture instruction to beginners in science. Laboratory work must precede, in order that a certain degree of familiarity with facts may be acquired before they are analyzed and methodized scientifically. It can be taught, even to young boys, and so can anything else; and it has the advantage of being rather amusing; but as an exercise in reasoning it is very deficient. The notions of force, cause, composition of causes, are too abstruse in this subject for boys to get any hold of. Hence it is, as a matter of fact, accepted as a mass of authoritative dogmas. It is not the conclusiveness but the ingenuity of the proofs that is appreciated. It is of all subjects the most liable to cram, and the most useless, as a branch of training, when crammed. Most of it requires memory, and memory alone. As laboratory work is not likely to form an integral part of school education, Chemistry ought not, I think, to take an early place in the scientific course. It is most desirable, however, that schools should possess laboratories, into which boys of some talent may be drafted, and there prepared for the profitable attendance on good chemical lectures in the higher part of the school.

Geology is a popular and attractive subject with boys, but it lies outside the subjects which best illustrate scientific method. The largeness of the ideas in it; the great inferences from little facts, as they seem to boys; the wide experience of scenery, and rocks, and fossils, and natural history, which it seems to require; the very unfinished condition of it; are all reasons which make its advocates enthusiastic, but unfit it for the staple of school teaching. Nevertheless, the value of it on other grounds, such as its interest, its bearing on all kinds of thought, its position as typical of Palætiological sciences, and the opportunities it offers for original investigations in most places, seems to me so high, that I think it ought to be introduced parenthetically into the course of instruction in whatever way or place may seem most convenient.

Physiology cannot be taught to classes at school. Nor ought it to be learnt before Physics and Chemistry. A most enthusiastic advocate of Physiology at school talked over the subject with me at Rugby. Practical work, he admitted, was necessary; and that it was impossible. I cannot give my class forty rats on Tuesday, at 9.15, to dissect for an hour, and then put them away till Saturday at the same hour. And the other subjects, if well taught, will have given boys a method and a knowledge which will fit them for acquiring, by reading alone, even if they cannot have practical work, some intelligent acquaintance with the doctrines and facts of Physiology.

SCIENCE WILL NOT RID SCHOOLS OF DUNCES.

The truth is, there is no place like school for having notions of equality driven, by dire experience, out of one's head. There are scores and scores of boys, whom you may educate how you will, and they will know very little when you have done, and know that little ill. There are boys of slipshod, unretentive, inactive minds, whom neither Greek grammar nor natural science, neither schoolmasters nor angels, could convert into active and cultivated men.

STUDIES AND CONDUCT.

EDUCATION IN ITS HIGHER ASPECTS AND RELATIONS.

ADDRESS DELIVERED TO THE UNIVERSITY OF ST. ANDREWS, BY JOHN STUART MILL, ON HIS INAUGURATION AS RECTOR. *Extracts.*

John Stuart Mill was born in London, May 1805, and received his entire education at home, under the direction of his father, James Mill, the author of the History of the British Empire in India. He obtained a clerkship in the East India House in 1823, and succeeded his father as examiner of Indian Correspondence in 1856, from which post he retired in 1858, when the affairs of the East India Company were transferred to Her Majesty's government. He was first known as a writer by his contributions to the Westminster Review, of which he became joint and afterwards sole proprietor. His 'System of Logic,' published in 1843; 'Essays on Unsettled Questions in Political Economy,' 1844, and 'System of Political Economy, with some of their Applications to Social Science,' 'Essay on Liberty,' 'Parliamentary Reform,' 'Representative Government,' 'Utilitarianism,' 'Comté and Positivism,' 'Sir William Hamilton's Philosophy,' 'The Subjection of Woman,'—place him among the profoundest thinkers and ablest writers of the age. He was elected to parliament in 1865, but was defeated in the general election of 1869. Mr. Carlyle in an invitation to the writer of this note to meet Mr. Mill at his house to tea in 1835, remarked—"You will meet the best educated man in this town, and no thanks to our Universities for this production."

EDUCATION IN ITS LARGER AND NARROWER SENSE.

Education, in its largest sense, is one of the most inexhaustible of all topics; and of all many-sided subjects, it is the one which has the greatest number of sides. Not only does it include whatever we do for ourselves, and whatever is done for us by others, for the express purpose of bringing us somewhat nearer to the perfection of our nature; it does more: in its largest acceptation, it comprehends even the indirect effects produced on character and on the human faculties, by things of which the direct purposes are quite different: by laws, by forms of government, by the industrial arts, by modes of social life; nay, even by physical facts not dependent on human will; by climate, soil, and local position. Whatever helps to shape the human being; to make the individual what he is, or hinder him from being what he is not—is part of his education. And a very bad education it often is; requiring all that can be done by cultivated intelligence and will, to counteract its tendencies.

I shall confine myself, however, to education in the narrower sense; the culture which each generation purposely gives to those who are to be its successors, in order to qualify them for at least keeping up, and if possible for raising, the level of improvement which has been attained. Nearly all here present are daily occupied either in receiving or in giving this sort of education: and the part of it which most concerns you at present is that in which you are yourselves engaged—the stage of education which is the appointed business of a national University.

THE PROPER FUNCTION OF AN UNIVERSITY.

Universities are not intended to teach the knowledge required to fit men for some special mode of gaining their livelihood. Their object is not to make skillful lawyers, or physicians, or engineers, but capable and cultivated human beings. It is very right that there should be public facilities for the study of professions. It is well that there should be Schools of Law, and of Medicine, and it would be well if there were schools of engineering, and the industrial arts. The countries which have such institutions are greatly the better for them; and there is something to be said for having them in the same localities, and under the same general superintendence, as the establishments devoted to education properly so called. But these things are no part of what every generation owes to the next, as that on which its civilization and worth will principally depend. They are needed only by a comparatively few, who are under the strongest private inducements to acquire them by their own efforts; and even those few do not require them until after their education, in the ordinary sense, has been completed. What professional men should carry away with them from an University, is not professional knowledge, but that which should direct the use of their professional knowledge, and bring the light of general culture to illuminate the technicalities of a special pursuit. Men may be competent lawyers without general education, but it depends on general education to make them philosophic lawyers—who demand, and are capable of apprehending, principles, instead of merely cramming their memory with details. And so of all other useful pursuits, mechanical included. Education makes a man a more intelligent shoemaker, if that be his occupation, but not by teaching him how to make shoes; it does so by the mental exercise it gives, and the habits it impresses.

This, then, is what a mathematician would call the higher limit of University education: its province ends where education, ceasing to be general, branches off into departments adapted to the individual's destination in life. The lower limit is more difficult to define. An University is not concerned with elementary instruction: the pupil is supposed to have acquired that before coming here. But where does elementary instruction end, and the higher studies begin? Some have given a very wide extension to the idea of elementary instruction. According to them, it is not the office of an University to give instruction in single branches of knowledge from the commencement.

What the pupil should be taught here (they think), is to methodize his knowledge: to look at every separate part of it in its relation to the other parts, and to the whole; combining the partial glimpses which he has obtained of the field of human knowledge at different points, into a general map, if I may so speak, of the entire region; observing how all knowledge is connected, how we ascend to one branch by means of another, how the higher modifies the lower, and the lower helps us to understand the higher; how every existing reality is a compound of many properties, of which each science or distinct mode of study reveals but a small part, but the whole of which must be included to enable us to know it truly as a fact in Nature, and not as a mere abstraction.

And doubtless this is the crown and consummation of a liberal education; but before we restrict an University to this highest department of instruction—before we confine it to teaching, not knowledge, but the philosophy of knowledge—we must be assured that the knowledge itself has been acquired elsewhere. Those who take this view of the function of an University are not wrong in thinking that the schools, as distinguished from the universities, ought to be adequate to teaching every branch of general instruction required by youth, so far as it can be studied apart from the rest. But where are such schools to be found? Since science assumed its modern character, nowhere: and in these islands less even than elsewhere.

THE SCOTTISH UNIVERSITY AND ENGLISH UNIVERSITY COMPARED.

This ancient kingdom, thanks to its great religious reformers, had the inestimable advantage, denied to its southern sister, of excellent parish schools, which gave, really and not in pretense, a considerable amount of valuable literary instruction to the bulk of the population, two centuries earlier than in any other country. But schools of a still higher description have been, even in Scotland, so few and inadequate, that the Universities have had to perform largely the functions which ought to be performed by schools; receiving students at an early age, and undertaking not only the work for which the schools should have prepared them, but much of the preparation itself. Every Scottish University is not an University only, but a High school, to supply the deficiency of other schools. And if the English Universities do not do the same, it is not because the same need does not exist, but because it is disregarded. Youths come to the Scottish Universities ignorant, and are there taught. The majority of those who come to the English Universities come still more ignorant, and ignorant they go away.

In point of fact, therefore, the office of a Scottish University comprises the whole of a liberal education, from the foundations upwards. And the scheme of your Universities has, almost from the beginning, really aimed at including the whole, both in depth and in breadth. You have not, as the English Universities so long did, confined all the stress of your teaching, all your real effort to teach, within the limits of two subjects, the classical languages and mathematics. You did not wait till the last few years to establish a Natural Science and a Moral Science Tripos. Instruction in both those departments was organized long ago; and your teachers of those subjects have not been nominal professors, who did not lecture: some of the greatest names in physical and in moral science have taught in your Universities and by their teaching contributed to form some of the most distinguished intellects of the last and present centuries. . . .

GENERAL EDUCATION SCHOOL BOTH SCIENTIFIC AND LITERARY.

Can any thing deserve the name of a good education which does not include literature and science too? If there were no more to be said than that scientific education teaches us to think, and literary education to express our thoughts, do we not require both? and is not any one a poor, maimed, lopsided fragment of humanity who is deficient in either? We are not obliged to ask ourselves whether it is more important to know the languages or the sciences. Short as life is, and shorter still as we make it by the time we waste on things which are neither business nor meditation, nor pleasure, we are not so badly off that our scholars need be ignorant of the laws and properties of the world they live in, or our scientific men destitute of poetic feeling and artistic cultivation. I am amazed at the limited conception which many educational reformers have formed to themselves of a human being's power of acquisition. The study of science, they truly say, is indispensable: our present education neglects it: there is truth in this too, though it is not all truth: and they think it impossible to find room for the studies which they desire to encourage, but by turning out, at least from general education, those which are now chiefly cultivated. How absurd, they say, that the whole of boyhood should be taken up in acquiring an imperfect knowledge of two dead languages. Absurd indeed: but is the human mind's capacity to learn, measured by that of Eton and Westminster to teach? I should prefer to see these reformers pointing their attacks against the shameful inefficiency of the schools, public and private, which pretend to teach these two languages and do not. I should like to hear them denounce the wretched methods of teaching, and the criminal idleness and supineness, which waste the entire boyhood of the pupils without really giving to most of them more than a smattering, if even that, of the only kind of knowledge which is even pretended, to be cared for. Let us try what conscientious and intelligent teaching can do, before we presume to decide what can not be done.

MODERN LANGUAGES, HISTORY, GEOGRAPHY, SUBORDINATE.

No one can in our age be esteemed a well-instructed person who is not familiar with at least the French language, so as to read French books with ease; and there is great use in cultivating a familiarity with German. But living languages are so much more easily acquired by intercourse with those who use them in daily life; a few months in the country itself, if properly employed, go so much farther than as many years of school lessons; that it is really waste of time for those to whom that easier mode is attainable, to labor at them with no help but that of books and master; and it will in time be made attainable through international schools and colleges, to many more than at present. Universities do enough to facilitate the study of modern languages, if they give a mastery over that ancient language which is the foundation of most of them, and the possession of which makes it easier to learn four or five of the continental languages than it is to learn one of them without it. Again, it has always seemed to me a great absurdity that history and geography should be taught in schools; except in elementary schools for the children of the laboring classes, whose subsequent access to books is limited. Who ever really learnt history and geography except by private reading? and what an utter failure a system of education must be, if it has not given the pupil a sufficient taste for reading to seek for himself those most attractive and easily intelligible of all kinds of knowledge? Besides, such history and geography as can be taught in schools exercise none of the faculties of the intelligence except the memory. An university is indeed the place where the student should be introduced to the philosophy of History; where Professors who not merely know the facts but have exercised their minds on them, should initiate him into the causes and explanation, so far as within our reach, of the past life of mankind in its principal features. Historical criticism also—the tests of historical truth—are a subject to which his attention may well be drawn in this stage of his education. But of the mere facts of history, as commonly accepted, what educated youth of any mental activity does not learn as much as is necessary, if he is simply turned loose into an historical library? What he needs on this, and on most other matters of common information, is not that he should be taught in boyhood, but that abundance of books should be accessible to him.

GREEK AND LATIN LANGUAGES TO BE STUDIED THOROUGHLY.

The only languages, then, and the only literature, to which I would allow a place in the regular curriculum, are those of the Greeks and Romans; and to these I would preserve the position in it which they at present occupy. That position is justified, by the great value, in education, of knowing well some other cultivated language and literature than one's own, and by the peculiar value of those particular languages and literatures.

There is one purely intellectual benefit from a knowledge of languages, which I am specially desirous to dwell on. Those who have seriously reflected on the causes of human error, have been deeply impressed with the tendency of mankind to mistake words for things. Without entering into the metaphysics of the subject, we know how common it is to use words glibly and with apparent propriety, and to accept them confidently when used by others, without ever having had any distinct conception of the things denoted by them. To quote again from Archbishop Whately, it is the habit of mankind to mistake familiarity for accurate knowledge. As we seldom think of asking the meaning of what we see every day, so when our ears are used to the sound of a word or a phrase, we do not suspect that it conveys no clear idea to our minds, and that we should have the utmost difficulty in defining it, or expressing, in any other words, what we think we understand by it. Now it is obvious in what manner this bad habit tends to be corrected by the practice of translating with accuracy from one language to another, and hunting out the meanings expressed in a vocabulary with which we have not grown familiar by early and constant youth.

But besides the advantage of possessing another cultivated language, there is a further consideration equally important. Without knowing the language of a people, we never really know their thoughts, their feelings, and their type of character; and unless we do possess this knowledge, of some other people than ourselves, we remain, to the hour of our death, with our intellects only half expanded. Look at a youth who has never been out of his family circle: he never dreams of any other opinions or ways of thinking than those he has been bred up in; or, if he has heard of any such, attributes them to some moral defect, or inferiority of nature or education. If his family are Tory, he can not conceive the possibility of being a Liberal; if Liberal, of being a Tory. What the notions and habits of a single family are to a boy who has had no intercourse beyond it, the notions and habits of his own country are to him who is ignorant of every other. Those notions and habits are to him human nature itself; whatever varies from them is an unaccountable aberration which he can not mentally realize: the idea that any other ways can be right, or as near an approach to right as some of his own, is inconceivable to him. This does not merely close his eyes to the many things which every country still has to learn from others; it hinders every country from reaching the improvement which it could otherwise attain by itself. . . .

Even as mere languages, no modern European language is so valuable a discipline to the intellect as those of Greece and Rome, on account of their regular and complicated structure. Consider for a moment what grammar is. It is the most elementary part of logic. It is the beginning of the analysis of the thinking process. The principles and rules of grammar are the means by which the forms of language are made to correspond with the universal forms of thought. The distinctions between the various parts of speech, between the cases of nouns, the moods and tenses of verbs, the functions of particles, are distinctions in thought, not merely in words. Single nouns and verbs express objects and events, many of which can be cognized by the senses; but the modes of putting nouns and verbs together, express the relations of objects and events, which can be cognized only by the intellect; and each different mode corresponds to a different relation. The structure of every sentence is a lesson in logic. The various rules of syntax oblige us to distinguish between the subject and predicate of a proposition, between the agent, the action, and the thing acted upon; to mark when an idea is intended to modify or qualify, or merely to unite with, some other idea; what assertions are categorical, what only conditional; whether the intention is to express similarity or contrast, to make a plurality of assertions conjunctively or disjunctively; what portions of a sentence, though grammatically complete within themselves, are mere members or subordinate parts of the assertion made by the entire sentence. Such things form the subject matter of universal grammar; and the languages which teach it best are those which have the most definite rules, and which provide distinct forms for the greatest number of distinctions in thought, so that if we fail to attend precisely and accurately to any of these, we can not avoid committing a solecism in language. In these qualities the classical languages have an incomparable superiority over every modern language, and over all languages, dead or living, which have a literature worth being generally studied. . . .

Human invention has never produced any thing so valuable, in the way both of stimulation and of discipline to the inquiring intellect, as the dialectics of the ancients, of which many of the works of Aristotle illustrate the theory, and those of Plato exhibit the practice. No modern writing comes near to these, in teaching, both by precept and example, the way to investigate truth, on those subjects, so vastly important to us, which remain matters of controversy, from the difficulty or impossibility of bringing them to a directly experimental test. To question all things; never to turn away from any difficulty;

to accept no doctrine either from ourselves or from other people without a rigid scrutiny by negative criticism, letting no fallacy, or incoherence, or confusion of thought, slip by unperceived; above all, to insist upon having the meaning of a word clearly understood before using it, and the meaning of a proposition before assenting to it: these are the lessons we learn from the ancient dialecticians. With all this vigorous management of the negative element, they inspire no scepticism about the reality of truth, or indifference to its pursuit. The noblest enthusiasm, both for the search after truth and for applying it to its highest uses, pervades these writers, Aristotle no less than Plato, though Plato has incomparably the greater power of imparting those feelings to others. In cultivating, therefore, the ancient languages as our best literary education, we are all the while laying an admirable foundation for ethical and philosophical culture. In purely literary excellence—in perfection of form—the preëminence of the ancients is not disputed. In every department which they attempted, and they attempted almost all, their composition, like their sculpture, has been to the greatest modern artists an example, to be looked up to with hopeless admiration, but of inappreciable value as a light on high, guiding their own endeavor.... The secret of the style of the great Greek and Roman authors, is that it is the perfection of good sense. In the first place, they never use a word without a meaning, or a word which adds nothing to the meaning. They always (to begin with) had a meaning; they knew what they wanted to say; and their whole purpose was to say it with the highest degree of exactness and completeness, and bring it home to the mind with the greatest possible clearness and vividness. It never entered into their thoughts to conceive of a piece of writing as beautiful in itself, abstractedly from what it had to express: its beauty must all be subservient to the most perfect expression of the sense. The *curiosa felicitas* which their critics ascribed in a preëminent degree to Horace, expresses the standard at which they all aimed. Their style is exactly described by Swift's definition, "the right words in the right places." Look at an oration of Demosthenes; there is nothing in it which calls attention to itself as style at all; it is only after a close examination we perceive that every word is what it should be, and where it should be, to lead the hearer smoothly and imperceptibly into the state of mind which the orator wishes to produce. The perfection of the workmanship is only visible in the total absence of any blemish or fault, and of any thing which checks the flow of thought and feeling, any thing which even momentarily distracts the mind from the main purpose. But then (as has been well said) it was not the object of Demosthenes to make the Athenians cry out "What a splendid speaker!" but to make them say "Let us march against Philip!" . . .

LIMITATIONS TO CLASSICAL STUDIES.

They should be carried as far as is sufficient to enable the pupil, in after life, to read the great works of ancient literature with ease. Those who have leisure and inclination to make scholarship, or ancient history, or general philology, their pursuit, of course, require much more, but there is no room for more in general education. The laborious idleness in which the school-time is wasted away in the English classical schools deserves the severest reprehension. To what purpose should the most precious years of early life be irreparably squandered in learning to write bad Latin and Greek verses? I do not see that we are much the better even for those who end by writing good ones. The exercise in composition, most suitable to the requirements of learners, is that most valuable one, of retranslating from translated passages of a good author; and to this might be added, what still exists in many Continental places of education, occasional practice in talking Latin. There would be something to be said for the time spent in the manufacture of verses, if such practice were necessary for the enjoyment of ancient poetry; though it would be better to lose that enjoyment than to purchase it at so extravagant a price. But the beauties of a great poet would be a far poorer thing than they are, if they only impressed us through a knowledge of the technicalities of his art. The poet needed those technicalities: they are not necessary to us. They are essential for criticising a poem, but not for enjoying it. All that is wanted is sufficient familiarity with the language, for its meaning to reach us without any sense of effort, and clothed with the associations on which the poet counted for producing his effect. Whoever has this familiarity, and a practiced ear, can have as keen a relish of the music of Virgil and Horace, as of Gray, or Burns, or Shelley, though he know not the metrical rules of a common Sapphic or Alcaic. I do not say that these rules ought not to be taught, but I would have a class apart for them, and would make the appropriate exercises an optional, not a compulsory part of the school teaching.

SCIENTIFIC INSTRUCTION IN THE ASCERTAINMENT OF TRUTH.

The most obvious part of the value of scientific instruction, the mere information that it gives, speaks for itself. We are born into a world which we have not made; a world whose phenomena take place according to fixed laws, of which we do not bring any knowledge into the world with us. In such a world we are appointed to live, and in it all our work is to be done. Our whole working power depends on knowing the laws of the world—in other words, the properties of the things which we have to work with, and to work among, and to work upon. We may and do rely, for the greater part of this knowledge, on the few who in each department make its acquisition their main business in life. But unless an elementary knowledge of scientific truths is diffused among the public, they never know what is certain and what is not, or who are entitled to speak with authority and who are not: and they either have no faith at all in the testimony of science, or are the ready dupes of charlatans and imposters. They alternate between ignorant distrust, and blind, often misplaced confidence. Besides, who is there who would not wish to understand the meaning of the common physical facts that take place under his eye? Who would not wish to know why a pump raises water, why a lever moves heavy weights, why it is hot at the tropics and cold at the poles, why the moon is sometimes dark and sometimes bright, what is the cause of the tides? Do we not feel that he who is totally ignorant of these things, let him be ever so skilled in a special profession, is not an educated man but an ignoramus? It is surely no small part of education to put us in intelligent possession of the most important and most universally interesting facts of the universe, so that the world which surrounds us may not be a sealed book to us, uninteresting because unintelligible. This, however, is but the simplest and most obvious part of the utility of science, and the part which, if neglected in youth, may be the most easily made up for afterwards. It is more important to understand the value of scientific instruction as a training and disciplining process, to fit the intellect for the proper work of a human being. Facts are the materials of our knowledge, but the mind itself is the instrument; and it is easier to acquire facts, than to judge what they prove, and how, through the facts which we know, to get to those which we want to know.

The most incessant occupation of the human intellect throughout life is the ascertainment of truth. We are always needing to know what is actually true about something or other. It is not given to us all to discover great general truths that are a light to all men and to future generations; though with a better general education the number of those who could do so would be far greater than it is. But we all require the ability to judge between the conflicting opinions which are offered to us as vital truths; to choose what doctrines we will receive in the matter of religion, for example; to judge whether we ought to be Tories, Whigs, or Radicals, or to what length it is our duty to go with each; to form a rational conviction on great questions of legislation and internal policy, and on the manner in which our country should behave to dependencies and to foreign nations. And the need we have of knowing how to discriminate truth, is not confined to the larger truths. All through life it is our most pressing interest to find out the truth about all the matters we are concerned with. If we are farmers we want to find what will truly improve our soil; if merchants, what will truly influence the markets of our commodities; if judges, or jurymen, or advocates, who it was that truly did an unlawful act, or to whom a disputed right truly belongs. Every time we have to make a new resolution or alter an old one, in any situation in life, we shall go wrong. unless we know the truth about the facts on which our resolution depends. Now, however different these searches for truth may look, and however unlike they really are in their subject matter, the methods of getting at truth, and the tests of truth, are in all cases much the same. There are but two roads by which truth can be discovered: observation and reasoning: observation, of course, including experiment. We all observe, and we all reason, and therefore more or less successfully, we all ascertain truths: but most of us do it very ill, and could not get on at all were we not able to fall back on others who do it better. If we could not do it in any degree, we should be mere instruments in the hands of those who could: they would be able to reduce us to slavery. Then how shall we best learn to do this? By being shown the way in which it has already been successfully done.

PROCESSES BY WHICH TRUTH IS ATTAINED.

The processes by which truth is attained, reasoning, and observation, have been carried to their greatest known perfection in the physical sciences. As classical literature furnishes the most perfect types of the art of expression, so do the physical sciences those of the art of thinking. Mathematics, and its application to astronomy and natural philosophy, are the most complete example of the discovery of truths by reasoning; experimental science, of their discovery by direct observation. In all these cases we know that we can trust the operation, because the conclusion to which it has led have been found true by subsequent trial. It is by the study of these, then, that we may hope to qualify ourselves for distinguishing truth, in cases where there do not exist the same ready means of verification.

In what consists the principal and most characteristic difference between one human intellect and another? In their ability to judge correctly of evidence. Our direct perceptions of truth are so limited; we know so few things by immediate intuition, or, as it used to be called, by simple apprehension—that we depend for almost all our valuable knowledge, on evidence external to itself; and most of us are very unsafe hands at estimating evidence, where an appeal can not be made to actual eyesight. The intellectual part of our education has nothing more important to do, than to correct or mitigate this almost universal infirmity—this summary and substance of nearly all purely intellectual weakness. To do this with effect needs all the resources which the most perfect system of intellectual training can command. Those resources, as every teacher knows, are but of three kinds: first, models; secondly, rules; thirdly, appropriate practice. The models of the art of estimating evidence are furnished by science; the rules are suggested by science; and the study of science is the most fundamental portion of the practice.

MATHEMATICS—PURE AND APPLIED.

It is chiefly from mathematics we realize the fact that there actually is a road to truth by means of reasoning; that any thing real, and which will be found true when tried, can be arrived at by a mere operation of the mind. The flagrant abuse of mere reasoning in the days of the schoolmen, when men argued confidently to supposed facts of outward nature without properly establishing their premises, or checking the conclusions by observation, created a prejudice in the modern, and especially in the English mind, against deductive reasoning altogether, as a mode of investigation. The prejudice lasted long, and was upheld by the misunderstood authority of Lord Bacon; until the prodigious applications of mathematics to physical science—to the discovery of the laws of external nature—slowly and tardily restored the reasoning process to the place which belongs to it as a source of real knowledge. Mathematics, pure and applied, are still the great conclusive example of what can be done by reasoning. Mathematics also habituates us to several of the principal precautions for the safety of the process. Our first studies in geometry teach us two invaluable lessons. One is, to lay down at the beginning, in express and clear terms, all the premises from which we intend to reason. The other is, to keep every step in the reasoning distinct and separate from all the other steps, and to make each step safe before proceeding to another; expressly stating to ourselves, at every joint in the reasoning, what new premise we there introduce. It is not necessary that we should do this at all times, in all our reasonings. But we must be always able and ready to do it. If the validity of our argument is denied, or if we doubt it ourselves, that is the way to check it. In this way we are often enabled to detect at once the exact place where paralogism or confusion get in: and after sufficient practice we may be able to keep them out from the beginning. It is to mathematics, again, that we owe our first notion of a connected body of truth; truths which grow out of one another, and hang together so that each implies all the rest; without contradicting another or others, until in the end it appears that no part of the system can be false unless the whole is so. Pure mathematics first gave us this conception; applied mathematics extends to it the realm of physical nature.

Applied mathematics shows us that not only the truths of abstract number and extension, but the external facts of the universe, which we apprehend by our senses, form at least, in a large part of all nature, a web similarly held together. We are able, by reasoning from a few fundamental truths, to explain and predict the phenomena of material objects: and what is still more remarkable, the fundamental truths were themselves found out by reasoning; for they are not such as are obvious to the senses, but had to be inferred by a mathematical process from a mass of minute details, which alone came within the direct reach of human observation. When Newton, in this manner, discovered the laws of the solar system, he created, for all posterity, the true idea of science. He gave the most perfect example we are ever likely to have, of that union of reasoning and observation, which by means of facts that can be directly observed, ascends to laws which govern multitudes of other facts—laws which not only explain and account for what we see, but give us assurance beforehand of much that we do not see, much that we never could have found out by observation, though, having been found out, it is always verified by the result.

DISCIPLINE OF THE EXPERIMENTAL SCIENCES.

While mathematics, and the mathematical sciences, supply us with a typical example of the ascertainment of truth by reasoning; those physical sciences which are not mathematical, such as chemistry, and purely experimental physics, show us in equal perfection the other mode of arriving at certain truth, by observation, in its most accurate form, that of experiment. The value of mathematics in a logical point of view is an old topic with mathematicians, and has even been insisted on so exclusively as to provoke a counter exaggeration, of which a well known essay by Sir William Hamilton is an example: but the logical value of experimental science is comparatively a new subject, yet there is no intellectual discipline more important than that which the experimental sciences afford. Their whole occupation consists in doing well, what all of us, during the whole of life, are engaged in doing, for the most part badly. All men do not affect to be reasoners, but all profess, and really attempt, to draw inferences from experience: yet hardly any one, who has not been a student of the physical sciences, sets out with any just idea of what the process of interpreting experience really is. If a fact has occurred once or oftener, and another fact has followed it, people think they have got an experiment, and are well on the road towards showing that the one fact is the cause of the other. If they did but know the immense amount of precaution necessary to a scientific experiment; with what sedulous care the accompanying circumstances are contrived and varied, so as to exclude every agency but that which is the subject of the experiment—or, when disturbing agencies can not be excluded, the minute accuracy with which their influence is calculated and allowed for, in order that the residue may contain nothing but what is due to the one agency under examination; if these things were attended to, people would be much less easily satisfied that their opinions have the evidence of experience; many popular notions and generalizations which are in all mouths, would be thought a great deal less certain than they are supposed to be; but we should begin to lay the foundation of really experimental knowledge, on things which are now the subjects of mere vague discussion, where one side finds as much to say, and says it as confidently as another, and each person's opinion is less determined by evidence than by his accidental interest or prepossession. . . .

LOGIC.

Logic lays down the general principles and laws of the search after truth; the conditions which, whether recognized or not, must actually have been observed if the mind has done its work rightly. Logic is the intellectual complement of mathematics and physics. Those sciences give the practice, of which logic is the theory. It declares the principles, rules, and precepts, of which they exemplify the observance.

The science of Logic has two parts; ratiocinative and inductive logic. The one helps to keep us right in reasoning from premises, the other in concluding from observation. Ratiocinative logic is much older than inductive, because reasoning in the narrower sense of the word is an easier process than induction, and the science which works by mere reasoning, pure mathematics, had been carried to a considerable height while the sciences of observation were still in the purely empirical period. The principles of ratiocination, therefore, were the earliest understood and systematized, and the logic of ratiocination is even now suitable to an earlier stage in education than that of induction. The principles of induction can not be properly understood without some previous study of the inductive sciences: but the logic of reasoning, which was already carried to a high degree of perfection by Aristotle, does not absolutely require even a knowledge of mathematics, but can be sufficiently exemplified and illustrated from the practice of daily life. . . .

PHYSIOLOGY.

There are other sciences, which are in a more backward state, and tax the whole powers of the mind in its mature years, yet a beginning of which may be beneficially made in university studies, while a tincture of them is valuable even to those who are never likely to proceed further. The first is physiology; the science of the laws of organic and animal life, and especially of the structure and functions of the human body. It would be absurd to pretend that a profound knowledge of this difficult subject can be acquired in youth, or as a part of general education. Yet an acquaintance with its leading truths is one of those acquirements which ought not to be the exclusive property of a particular profession. The value of such knowledge for daily uses has been made familiar to us all by the sanitary discussions of late years. There is hardly one among us who may not, in some position of authority, be required to form an opinion and take part in public action on sanitary subjects. And the importance of understanding the true conditions of health and disease—of knowing how to acquire and preserve that healthy habit of body which the most tedious and costly medical treatment so often fails to restore when once lost, should secure a place in general education for the principal maxims of hygiene, and some of those even of practical medicine.

For those who aim at high intellectual cultivation, the study of physiology has still greater recommendations, and is, in the present state of advancement of the higher studies, a real necessity. The practice which it gives in the study of nature is such as no other physical science affords in the same kind, and is the best introduction to the difficult questions of politics and social life. Scientific education, apart from professional objects, is but a preparation for judging rightly of Man, and of his requirements and interests. But to this final pursuit, which has been called *par excellence* the proper study of mankind, physiology is the most serviceable of the sciences, because it is the nearest. Its subject is already Man; the same complex and manifold being, whose properties are not independent of circumstance, and immovable from age to age, like those of the ellipse and hyperbola, or of sulphur and phosphorus, but are infinitely various, indefinitely modifiable by art or accident, graduating by the nicest shades into one another, and reacting upon one another in a thousand ways, so that they are seldom capable of being isolated and observed separately. With the difficulties of the study of a being so constituted, the physiologist, and he alone among scientific inquirers, is already familiar. Take what view we will of man as a spiritual being, one part of his nature is far more like another than either of them is like any thing else. In the organic world we study nature under disadvantages very similar to those which affect the study of moral and political phenomena: our means of making experiments are almost as limited, while the extreme complexity of the facts makes the conclusions of general reasoning unusually precarious. on account of the vast number of circumstances that conspire to determine every result. Yet in spite of these obstacles, it is found possible in physiology to arrive at a considerable number of well ascertained and important truths. This, therefore, is an excellent school in which to study the means of overcoming similar difficulties elsewhere. It is in physiology, too, that we are first introduced to some of the conceptions which play the greatest part in the moral and social sciences, but which do not occur at all in those of inorganic nature. As, for instance, the idea of predisposition, and of predisposing causes, as distinguished from exciting causes. The operation of all moral forces is immensely influenced by predisposition: without that element, it is impossible to explain the commonest facts of history and social life. Physiology is also the first science in which we recognize the influence of habit—the tendency of something to happen again merely because it has happened before. From physiology, too, we get our clearest notion of what is meant by development or evolution. The growth of a plant or animal from the first germ is the typical specimen of a phenomenon which rules through the whole course of the history of man and society—increase of function, through expansion and differentiation of structure by internal forces. . . .

PSYCHOLOGY.

Psychology is simply the laws of the knowledge of human nature. If there is any thing that deserves to be studied by man, it is his own nature and that of his fellow men: and if it is worth studying at all, it is worth studying scientifically, so as to reach the fundamental laws which underlie and govern all the rest. With regard to the suitableness of this subject for general education, a distinction must be made. There are certain observed laws of our thoughts and of our feelings which rest upon experimental evidence, and, once seized, are a clue to the interpretation of much that we are conscious of in ourselves, and observe in one another. Such, for example, are the laws of association. Psychology, so far as it consists of such laws—I speak of the laws themselves, not of their disputed applications—is as positive and certain a science as chemistry, and fit to be taught as such. When, however, we pass beyond the bounds of these admitted truths, to questions which are still in controversy among the different philosophical schools—how far the higher operations of the mind can be explained by association, how far we must admit other primary principles—what faculties of the mind are simple, what complex, and what is the composition of the latter—above all, when we embark upon the sea of metaphysics, properly so called, and inquire, for instance, whether time and space are real existences, as is our spontaneous impression, or forms of our sensitive faculty, as is maintained by Kant, or complex ideas generated by association; whether matter and spirit are conceptions merely relative to our faculties, or facts existing *per se*, and in the latter case, what is the nature and limit of our knowledge of them; whether the will of man is free or determined by causes, and what is the real difference between the two doctrines: matters on which the most thinking men, and those who have given most study to the subjects, are still divided; it is neither to be expected nor desired that those who do not specially devote themselves to the higher departments of speculation should employ much of their time in attempting to get to the bottom of these questions. But it is a part of liberal education to know that such controversies exist, and, in a general way, what has been said on both sides of them.

POLITICS—HISTORY.

Politics can not be learned once for all, from a textbook, or the instructions of a master. Education is not entitled on this subject, to recommend any set of opinions as resting on the authority of established science. But it can supply the student with materials for his own mind, and helps to use them. It can make him acquainted with the best speculations on the subject, taken from different points of view: none of which will be found complete, while each embodies some considerations really relevant, really requiring to be taken into the account. Education may also introduce us to the principal facts which have a direct bearing on the subject, namely the different modes or stages of civilization that have been found among mankind, and the characteristic properties of each. This is the true purpose of historical studies, as prosecuted in an University.

Civil and Political Economy—Jurisprudence—International Law.

Pupils should be taught the outlines of the civil and political institutions of their own country, and in a more general way, of the more advanced of the other civilized nations. Those branches of politics, or of the laws of social life in which there exists a collection of facts or thoughts sufficiently sifted and methodized to form the beginning of a science, should be taught *ex professo*. Among the chief of these is Political Economy; the sources and conditions of wealth and material prosperity for aggregate bodies of human beings. This study approaches nearer to the rank of a science, in the sense in which we apply that name to the physical sciences, than any thing else connected with politics yet does. I need not enlarge on the important lessons which it affords for the guidance of life, and for the estimation of laws and institutions, or on the necessity of knowing all that it can teach in order to have true views of the course of human affairs, or form plans for their improvement which will stand actual trial. The same persons who cry down Logic will generally warn you against Political Economy.

Of no less importance than Political Economy is the study of what is called

Jurisprudence; the general principles of law; the social necessities which laws are required to meet; the features common to all systems of law, and the differences between them; the requisites of good legislation, the proper mode of constructing a legal system, and the best constitution of courts of justice and modes of legal procedure. These things are not only the chief part of the business of government, but the vital concern of every citizen; and their improvement affords a wide scope for the energies of any duly prepared mind, ambitious of contributing towards the better condition of the human race.

To these studies I would add International Law; which I decidedly think should be taught in all universities, and should form part of all liberal education. The need of it is far from being limited to diplomatists and lawyers; it extends to every citizen. What is called the Law of Nations is not properly law, but a part of ethics: a set of moral rules, accepted as authoritative by civilized states. It is true that these rules neither are nor ought to be of eternal obligation, but do and must vary more or less from age to age as the consciences of nations become more enlightened, and the exigencies of political society undergo change. But the rules mostly were at their origin, and still are, an application of the maxims of honesty and humanity to the intercourse of states. They were introduced by the moral sentiments of mankind, or by their sense of the general interest, to mitigate the crimes and sufferings of a state of war, and to restrain governments and nations from unjust or dishonest conduct towards one another in time of peace. Since every country stands in numerous and various relations with the other countries of the world, and many, our own among the number, exercise actual authority over some of these, a knowledge of the established rules of international morality is essential to the duty of every nation, and therefore of every person in it who helps to make up the nation, and whose voice and feeling form a part of what is called public opinion. . .

RELIGION AND ETHICS.

Moral and religious education consist in training the feelings and the daily habits; and these are, in the main, beyond the sphere, and inaccessible to the control of public education. It is the home, the family, which gives us the moral or religious education we really receive; and this is completed, and modified, sometimes for the better, often for the worse, by society, and the opinions and feelings with which we are there surrounded. The moral or religious influence which an university can exercise, consists less in any express teaching, than in the pervading tone of the place. Whatever it teaches, it should teach as penetrated by a sense of duty; it should present all knowledge as chiefly a means to worthiness of life, given for the double purpose of making each of us practically useful to his fellow creatures, and of elevating the character of the species itself; exalting and dignifying our nature. There is nothing which spreads more contagiously from teacher to pupil than elevation of sentiment: often and often have students caught from the living influence of a professor, a contempt for mean and selfish objects, and a noble ambition to leave the world better than they found it, which they have carried with them throughout life. In these respects, teachers of every kind have natural and peculiar means of doing with effect, what every one who mixes with his fellow-beings, or addresses himself to them in any character, should feel bound to do to the extent of his capacity and opportunities. What is special to an university on these subjects belongs chiefly, like the rest of its work, to the intellectual department. An university exists for the purpose of laying open to each succeeding generation, as far as the conditions of the case admit, the accumulated treasure of the thoughts of mankind. As an indispensable part of this, it has to make known to them what mankind at large, their own country, and the best and wisest individual men, have thought on the great subjects of morals and religion. There should be, and there is in most universities, professorial instruction in moral philosophy; but I could wish that this instruction were of a somewhat different type from what is ordinarily met with. I could wish that it were more expository, less polemical, and above all less dogmatic. The learner should be made acquainted with the principal systems of moral philosophy which have existed and been practically operative among mankind, and should hear what there is to be said for each: the Aristotelian, the Epicurean, the Stoic, the Judaic, the Christian in the various modes of its interpretation, which differ almost as much from one another as the teachings of those earlier schools. He should be made familiar with the different standards of right and wrong, which have been taken as the basis of ethics; general utility, natural justice, natural rights, a moral sense, principles of practical reason, and the rest. Among all these, it is not so much the teacher's business to take a side, and fight stoutly for some one against the rest, as it is to direct them all towards the establishment and preservation of the rules of conduct most advantageous to mankind. . . .

ÆSTHETIC CULTURE.

There is a third division of human culture which, if subordinate, and owing allegiance to the two others, is barely inferior to them, and not less needful to the completeness of the human being; I mean the æsthetic branch; the culture which comes through poetry and art, and may be described as the education of the feelings, and the cultivation of the Beautiful. This department of things deserves to be regarded in a far more serious light than is the custom of these countries. It is only of late, and chiefly by a superficial imitation of foreigners, that we have begun to use the word Art by itself, and to speak of Art as we speak of Science, or Government, or Religion: we used to talk of the Arts, and more specifically of the Fine Arts: and even by them were vulgarly meant only two forms of art, Painting and Sculpture, the two which, as a people, we cared least about—which were regarded even by the more cultivated among us as little more than branches of domestic ornamentation, a kind of elegant upholstery. . . .

To find Art ranking on a complete equality, in theory at least, with Philosophy, Learning, and science—as holding an equally important place among the agents of civilization and among the elements of the worth of humanity; to find even painting and sculpture treated as great social powers, and the art of a country as a feature in its character and condition, little inferior in importance to either its religion or its government; all this only did not amaze and puzzle Englishmen, because it was too strange for them to be able to realize it, or, in truth, to believe it possible: and the radical difference of feeling on this matter between the British people and those of France, Germany, and the Continent generally, is one among the causes of that extraordinary inability to understand one another, which exists between England and the rest of Europe, while it does not exist to any thing like the same degree between one nation of Continental Europe and another.

Poetic Cultivation.

It is quite possible to cultivate the conscience and the sentiments too. Nothing hinders us from so training a man that he will not, even for a disinterested purpose, violate the moral law, and also feeding and encouraging those high feelings, on which we mainly rely for lifting men above low and sordid objects, and giving them a higher conception of what constitutes success in life. If we wish men to practice virtue, it is worth while trying to make them love virtue, and feel it an object in itself, and not a tax paid for leave to pursue other objects. It is worth training them to feel, not only actual wrong or actual meanness, but the absence of noble aims and endeavors, as not merely blameable but also degrading: to have a feeling of the miserable smallness of mere self in the face of this great universe, of the collective mass of our fellow creatures, in the face of past history and of the indefinite future—the poorness and insignificance of human life if it is to be all spent in making things comfortable for ourselves and our kin, and raising ourselves and them a step or two on the social ladder. Thus feeling, we learn to respect ourselves only so far as we feel capable of nobler objects: and if unfortunately those by whom we are surrounded do not share our aspirations, perhaps disapprove the conduct to which we are promoted by them—to sustain ourselves by the ideal sympathy of the great characters in history, or even in fiction, and by the contemplation of an idealized posterity: shall I add, of ideal perfection embodied in a Divine Being? Now, of this elevated tone of mind the great source of inspiration is poetry, and all literature so far as it is poetical and artistic. We may imbibe exalted feelings from Plato, or Demosthenes, or Tacitus, but it is in so far as those great men are not solely philosophers or orators or historians, but poets and artists.

Nor is it only loftiness, only the heroic feelings, that are bred by poetic cultivation. Its power is as great in calming the soul as in elevating it—in fostering the milder emotions, as the more exalted. It brings home to us all those aspects of life which take hold of our nature on its unselfish side, and lead us to identify our joy and grief with the good or ill of the system of which we form a part; and all those solemn or pensive feelings, which, without having any direct application to conduct, incline us to take life seriously, and predispose us to the reception of any thing which comes before us in the shape of duty. Who does not feel a better man after a course of Dante, or of Wordsworth, or, I will add, of Lucretius or the Georgics, or after brooding over Gray's Elegy, or Shelley's Hymn to Intellectual Beauty?

I have spoken of poetry, but all the other modes of art produce similar effects in their degree. The races and nations whose senses are naturally finer and their sensuous perceptions more exercised than ours, receive the same kind of impressions from painting and sculpture: and many of the more delicately organized among ourselves do the same. All the arts of expression tend to keep alive and in activity the feelings they express. Do you think that the great Italian painters would have filled the place they did in the European mind, would have been universally ranked among the greatest men of their time, if their productions had done nothing for it but to serve as the decoration of a public hall or a private *salon?* Their Nativities and Crucifixions, their glorious Madonnas and Saints, were to their susceptible Southern countrymen the great school not only of devotional, but of all the elevated and all the imaginative feelings. We colder Northerns may approach to a conception of this function of art when we listen to an oratorio of Handel, or give ourselves up to the emotions excited by a Gothic cathedral. Even apart from any specific emotional expression, the mere contemplation of beauty of a high order produces in no small degree this elevating effect on the character. The power of natural scenery addresses itself to the same region of human nature which corresponds to Art.

To whatever avocations we may be called in life, let us never quash these susceptibilities within us, but carefully seek the opportunities of maintaining them in exercise. The more prosaic our ordinary duties, the more necessary it is to keep up the tone of our minds by frequent visits to that higher region of thought and feeling, in which every work seems dignified in proportion to the ends for which, and the spirit in which, it is done; where we learn, while eagerly seizing every opportunity of exercising higher faculties and performing higher duties, to regard all useful and honest work as a public function, which may be ennobled by the mode of performing it—which has not properly any other nobility than what that gives—and which, if ever so humble, is never mean but when it is meanly done, and when the motives from which it is done are mean motives. There is, besides, a natural affinity between goodness and the cultivation of the Beautiful, when it is real cultivation, and not a mere unguided instinct. He who has learnt what beauty is, if he be of a virtuous character, will desire to realize it in his own life—will keep before himself a type of perfect beauty in human character, to light his attempts at self-culture.

DISCIPLINE OF ACTIVE LIFE.

Now, having traveled with you over the whole range of the materials and training which an University supplies as a preparation for the higher uses of life, it is almost needless to add any exhortation to you to profit by the gift. Now is your opportunity for gaining a degree of insight into subjects larger and far more ennobling than the minutiæ of a business or a profession, and for acquiring a facility of using your minds on all that concerns the higher interests of man, which you will carry with you into the occupations of active life, and which will prevent even the short intervals of time which that may leave you, from being altogether lost for noble purposes. Having once conquered the first difficulties, the only ones of which the irksomeness surpasses the interest; having turned the point beyond which what was once a task becomes a pleasure; in even the busiest after-life, the higher powers of your mind will make progress imperceptibly, by the spontaneous exercise of your thoughts, and by the lessons you will know how to learn from daily experience. So, at least, it will be if in your early studies you have fixed your eyes upon the ultimate end from which those studies take their chief value—that of making you more effective combatants in the great fight which never ceases to rage between Good and Evil, and more equal to coping with the ever new problems which the changing course of human nature and human society present to be resolved.

JAMES ANTHONY FROUDE.

JAMES ANTHONY FROUDE, youngest son of the venerable R. H. Froude, Archdeacon of Totnes, was born at Dartington, Devonshire, April 23, 1818, and educated at Westminster and at Oriel College, Oxford, where he graduated in classical honors, and obtained the Chancellor's Prize for the English essay (subject, Political Economy), and was elected Fellow of Exeter College in 1842. For some time he was connected with the High Church party, under the Rev. J. H. Newman, wrote in "The Lives of the English Saints," and took deacon's orders in 1844. He is the author of "The Shadows of the Clouds," published in 1847, and "The Nemesis of Faith," in 1849; both of which were severely condemned by the University authorities. In 1850 he began to contribute articles to the *Westminster Review*, and to *Fraser's Magazine*, chiefly on English history; and in 1856 published the first two volumes of his "History of England from the fall of Wolsey," which has been continued from time to time; Vols. 9 and 10 having been published in 1866. His "Short Studies on Great Subjects" in 1867, embrace a portion of his contributions to the Reviews, and was followed in 1872 by a second volume, from which we take copious extracts from his address on Education.

THE PLACE AND SUBJECT OF THE ADDRESS.*

Many years ago, when I was first studying the history of the Reformation in Scotland, I read a story of a slave in a French galley, who was one morning bending wearily over his oar. The day was breaking, and, rising out of the gray waters, a line of cliffs was visible, and the white houses of a town and a church tower. The rower was a man unused to such service, worn with toil and watching, and likely, it was thought, to die. A companion touched him, pointed to the shore, and asked him if he knew it.

"Yes," he answered, "I know it well. I see the steeple of that place where God opened my mouth in public to his glory; and I know, how weak soever I now appear, I shall not depart out of this life till my tongue glorify his name in the same place."

Gentlemen, that town was St. Andrew's, that galley slave was John Knox; and we know that he came back and did "glorify God" in this place and others to some purpose.

I am addressing the successors of that remote generation of students whom Knox, at the end of his life, "called round him," in the yard of this very College, "and exhorted them," as James Melville tells us, "to know God and stand by the good cause, and use their time well." It will be happy for me if I, too, can read a few words to you out of the same lesson-book; for to make us know our duty and do it, to make us upright in act and true in thought and word, is the aim of all instruction which deserves the name, the epitome of all purposes for which education exists. Duty changes, truth expands, one age can not teach another either the details of its obligations or the matter of its knowledge, but the principle of obligation is everlasting. The consciousness of duty, whatever its origin, is to the moral nature of man what *life* is in the seed-cells of all organized creatures: the condition of its coherence, the elementary force in virtue of which it grows.

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* EDUCATION: An Address delivered to the Students of St. Andrews, March 19, 1869.

REVOLUTIONARY MOVEMENT IN EDUCATION.

There is no occasion to tell a Scotchman to value education. Our own great schools and colleges are in the middle of a revolution, which, like most revolutions, means discontent with what we have, and no clear idea of what we would have. The causes are not far to seek. On the one hand there is the immense multiplication of the subjects of knowledge, through the progress of science, and the investigation on all sides into the present and past condition of this planet and its inhabitants; on the other, the equally increased range of occupations, among which the working part of mankind are now distributed, and for one or other of which our education is intended to qualify us. It is admitted by every one that we can not any longer confine ourselves to the learned languages, to the grammar and logic and philosophy which satisfied the seventeenth century. Yet, if we try to pile on the top of these the histories and literatures of our own and other nations, with modern languages and sciences, we accumulate a load of matter which the most ardent and industrious student can not be expected to cope with.

AIM IN ANCIENT ENGLISH AND SCOTCH EDUCATION.

In every thing that we do, or mean to do, the first condition of success is that we understand clearly the result which we desire to produce. The house-builder does not gather together a mass of bricks and timber and mortar, and trust that somehow a house will shape itself out of its materials. Wheels, springs, screws, and dial-plate will not constitute a watch, unless they are shaped and fitted with the proper relations to one another. I have long thought that, to educate successfully, you should first ascertain clearly, with sharp and distinct outline, what you mean by an educated man.

Now our ancestors, whatever their other shortcomings, understood what they meant perfectly well. In their primary education and in their higher education they knew what they wanted to produce, and they suited their means to their ends. They set out with the principle that every child born in the world should be taught his duty to God and man. The majority of people had to live, as they always must, by bodily labor; therefore every boy was, as early as was convenient, set to labor. He was not permitted to idle about the streets or lanes. He was apprenticed to some honest industry. Either he was sent to a farm, or, if his wits were sharper, he was allotted to the village carpenter, bricklayer, tailor, shoemaker, or whatever it might be. He was instructed in some positive calling by which he could earn his bread and become a profitable member of the commonwealth. Besides this, but not, you will observe, independent of it, you had in Scotland, established by Knox, your parish schools where he was taught to read, and, if he showed special talent that way, he was made a scholar of and trained for the ministry. But neither Knox nor any one in those days thought of what we call enlarging the mind. A boy was taught reading that he might read his Bible and learn to fear God, and be ashamed and afraid to do wrong.

An eminent American was once talking to me of the school system in the United States. The boast and glory of it, in his mind, was that every citizen born had a fair and equal start in life. Every one of them knew that he had a chance of becoming President of the Republic, and was spurred to energy by the hope. Here, too, you see, is a distinct object. Young Americans are all educated alike. The aim put before them is to get on. They are like runners in a race, set to push and shoulder for the best places; never to rest contented, but to struggle forward in never ending competition. It has answered its purpose in a new and unsettled country, where the center of gravity has not yet determined into its place; but I can not think that such a system as this can be permanent, or that human society, constituted on such a principle, will ultimately be found tolerable. For one thing, the prizes of life so looked at are at best but few and the competitors many. "For myself," said the great Spinoza, "I am certain that the good of human life can not lie in the possession of things which, for one man to possess, is for the rest to lose, but rather in things which all can possess alike, and where one man's wealth promotes his neighbor's." At any rate, it was not any such notion as this which Knox had before him when he instituted your parish schools. We had no parish schools in England for centuries after he was gone, but the object was answered by the Church catechising and the Sunday-school. Our boys, like yours, were made to understand that they would have to answer for the use that they made of their lives. And, in both countries, they were put in the way of leading useful lives if they would be honest, by industrial training. The essential thing was that every one that was willing to work should be enabled to maintain himself and his family in honor and independence.

Pass to the education of a scholar, and you find the same principle otherwise applied. There are two ways of being independent. If you require much, you must produce much. If you produce little, you must require little. Those whose studies added nothing to the material wealth of the world, were taught to be content to be poor. They were a burden on others, and the burden was made as light as possible. The thirty thousand students who gathered out of Europe to Paris to listen to Abelard, did not travel in carriages, and they brought no portmanteau's with them. They carried their wardrobes on their backs. They walked from Paris to Padua, from Padua to Salamanca, and they begged their way along the roads. The laws against mendicancy in all countries were suspended in favor of scholars wandering in pursuit of knowledge, and formal licenses were issued to them to ask alms. At home, at his college, the scholar's fare was the hardest, his lodging was the barest. If rich in mind, he was expected to be poor in body; and so deeply was this theory grafted into English feeling that earls and dukes, when they began to frequent universities, shared the common simplicity. The furniture of a noble earl's room at an English university at present may cost, including the pictures of opera-dancers and race-horses, and such like, perhaps five hundred pounds. When the magnificent Earl of Essex was sent to Cambridge, in Elizabeth's time, his guardians provided him with a deal table, covered with green baize, a truckle bed, half-a-dozen chairs, and a wash hand-basin. The cost of all, I think, was five pounds.

You see what was meant. The scholar was held in high honor: but his contributions to the commonwealth were not appreciable in money, and were not rewarded with money. He went without what he could not produce, that he might keep his independence and his self-respect unharmed. Neither scholarship nor science starved under this treatment; more noble souls have been smothered in luxury, than were ever killed by hunger. Your Knox was brought up in this way, Buchanan was brought up in this way, Luther was brought up in this way, and Tyndal who translated the Bible, and Milton and Kepler, and Spinoza, and your Robert Burns. Compare Burns, bred behind the plow, and our English Byron!

This was the old education, which formed the character of the English and Scotch nations. It is dying away at both extremities, as no longer suited to what is called modern civilization. The apprenticeship as a system of instruction is gone. The discipline of poverty—not here as yet, I am happy to think, but in England—is gone also; and we have got instead what are called enlarged minds.

OBJECT OF MODERN SCHOOLS—HIGH AND LOW.

I ask a modern march-of-intellect man what education is for; and he tells me it is to make educated men. I ask what an educated man is: he tells me it is a man whose intelligence has been cultivated, who knows something of the world he lives in—the different races of men, their languages, their histories, and the books that they have written; and again, modern science, astronomy, geology, physiology, political economy, mathematics, mechanics—every thing, in fact, which an educated man ought to know.

Education, according to this, means instruction in every thing which human beings have done, thought, or discovered; all history, all languages, all sciences.

A young man going to Oxford learns the same things which were taught there two centuries ago; but, unlike the old scholars, he learns no lessons of poverty along with it. In his three years' course he will have tasted luxuries unknown to him at home, and contracted habits of self-indulgence which make subsequent hardships unbearable: while his antiquated knowledge, such as it is, has fallen out of the market; there is no demand for him; he is not sustained by the respect of the world, which finds him ignorant of every thing in which it is interested. He is called educated; yet, if circumstances throw him on his own resources, he can not earn a sixpence for himself.

If I go into modern model schools, I find first of all the three R's, about which we are all agreed; I find next the old Latin and Greek, which the schools must keep to while the universities confine their honors to these; and then, by way of keeping up with the times, "abridgments," "text-books," "elements," or whatever they are called, of a mixed multitude of matters, history, natural history, physiology, chronology, geology, political economy, and I know not what besides; general knowledge which, in my experience, means knowledge of nothing: stuff arranged admirably for one purpose, and one purpose only—to make a show in examinations. To cram a lad's mind with infinite names of things which he never handled, places he never saw or will see, statements of facts which he can not possibly understand, and must remain merely words to him,—this, in my opinion, is like loading his stomach with marbles. It is wonderful what a quantity of things of this kind a quick boy will commit to memory, how smartly he will answer questions, how he will show off in school inspections, and delight the heart of his master. But what has been gained for the boy himself, let him carry this kind of thing at far as he will, if, when he leaves school, he has to make his own living? Lord Brougham once said he hoped a time would come when every man in England would read Bacon. William Cobbett, that you may have heard of, said he would be contented if a time came when every man in England would eat bacon. . . .

ALL EDUCATION SHOULD PREPARE FOR OCCUPATIONS.

Before we begin to train a boy's mind, I will try to explain what I, for my part, would desire to see done with it.

I will take the lowest scale first.

I accept without qualification the first principle of our forefathers, that every boy born into the world should be put in the way of maintaining himself in honest independence. No education which does not make this its first aim, is worth any thing at all. There are but three ways of living, as some one has said; by working, by begging, or by stealing. Those who do not work, disguise it in whatever pretty language we please, are doing one of the other two. A poor man's child is brought here with no will of his own. We have no right to condemn him to be a mendicant or a rogue; he may fairly demand therefore, to be put in the way of earning his bread by labor. The practical necessities must take precedence of the intellectual. A tree must be rooted in the soil before it can bear flowers and fruit. A man must learn to stand upright upon his own feet, to respect himself, to be independent of charity or accident. It is on this basis only that any superstructure of intellectual cultivation worth having can possibly be built. The old apprenticeship, therefore, was, in my opinion, an excellent system, as the world used to be. The Ten Commandments and a handicraft made a good and wholesome equipment to commence life with. Times are changed. The apprentice plan broke down: partly because it was abused for purposes of tyranny; partly because employers did not care to be burdened with boys whose labor was unprofitable; partly because it opened no road for exceptional clever lads to rise into higher positions; they were started in a groove from which they could never afterwards escape.

Yet the original necessities remain unchanged. The Ten Commandments are as obligatory as ever, and practical ability, the being able to do something and not merely to answer questions, must still be the backbone of the education of every boy who has to earn his bread by manual labor.

Add knowledge afterwards as much as you will, but let it be knowledge which will lead to the doing better each particular work which a boy is practicing; every fraction of it will thus be useful to him; and if he has it in him to rise, there is no fear but he will find opportunity.

Every occupation, even the meanest—I don't say the scavengers or the chimney-sweeps—but every productive occupation which adds any thing to the capital of mankind, if followed assiduously with a desire to understand every thing connected with it, is an ascending stair whose summit is nowhere, and from the successive steps of which the horizon of knowledge perpetually enlarges. Take the lowest and most unskilled labor of all, that of the peasant in the field. The peasant's business is to make the earth grow food: the elementary rules of his art are the simplest, and the rude practice of it the easiest; yet between the worst agriculture and the best lies agricultural chemistry, the application of machinery, the laws of the economy of force, and the most curious problems of physiology. Each step of knowledge gained in these things can be immediately applied and realized. Each point of the science which the laborer masters will make him not only a wiser man but a better workman; and will either lift him, if he is ambitious, to a higher position, or make him more intelligent and more valuable if he remains where he is.

It sounds like mockery to talk thus of the possible prospects of the toil-worn drudge who drags his limbs at the day's end to his straw pallet, sleeps heavily, and wakes only to renew the weary round. I am but comparing two systems of education, from each of which the expected results may be equally extravagant. I mean only that if there is to be this voice rolling over chaos again, ushering in a millenium, the way of it lies through industrial teaching, where the practical underlies the intellectual. The millions must ever be condemned to toil with their hands, or the race will cease to exist. The beneficent light when it comes, will be a light which will make labor more productive by being more scientific; which will make the humblest drudgery not unworthy of a human being, by making it at the same time an exercise to his mind.

AIM OF HIGHER OR UNIVERSITY EDUCATION.

As the world requires handicrafts, so it requires those whose work is with the brain, or with brain and hand combined—doctors, lawyers, engineers, ministers of religion. Bodies become deranged, affairs become deranged, sick souls require their sores to be attended to; and so arise the learned professions, to one or other of which I presume that most of you whom I am addressing intend to belong. Well, to the education for the professions I would apply the same principle. The student should learn at the university what will enable him to earn his living as soon after he leaves it as possible. I am well aware that a professional education can not be completed at a university; but it is true also that with every profession there is a theoretic or scientific groundwork which can be learnt nowhere so well, and, if those precious years are wasted on what is useless, will never be learnt properly at all. You are going to be a lawyer: you must learn Latin, for you can not understand the laws of Scotland without it; but if you must learn another language, Norman French will be more useful to you than Greek, and the Acts of Parliament of Scotland more important reading than Livy or Thucydides. Are you to be a doctor?—you must learn Latin too; but neither Thucydides nor the Acts of Parliament will be of use to you—you must learn chemistry; and if you intend hereafter to keep on a level with your science, you must learn modern French and German, and learn them thoroughly well, for mistakes in your work are dangerous.

Are you to be an engineer? You must work now, when you have time, at mathematics. You will make no progress without it. You must work at chemistry; it is the grammar of all physical sciences, and there is hardly one of the physical sciences with which you may not require to be acquainted.

History, poetry, logic, moral philosophy, classical literature, are excellent as ornament. If you care for such things, they may be the amusement of your leisure hereafter; but they will not help you to stand on your feet and walk alone: and no one is properly a man till he can do that. You can not learn every thing; the objects of knowledge have multiplied beyond the powers of the strongest mind to keep pace with them all. You must choose among them, and the only reasonable guide to choice in such matters is utility. The old saying, *Non multa sed multum*, becomes every day more pressingly true. If we mean to thrive, we must take one line and rigidly and sternly confine our energies to it. Am I told that it will make men into machines? I answer that no men are machines who are doing good work conscientiously and honestly, with the fear of their Maker before them. And if a doctor or a lawyer has it in him to become a *great* man, he can ascend through his profession to any height to which his talents are equal. All that is open to the handicraftsman is open to him, only that he starts a great many rounds higher up the ladder.

What I deplore in our present higher education is the devotion of so much effort and so many precious years to subjects which have no practical bearing upon life. We had a theory at Oxford that our system, however defective in many ways, yet developed in us some especially precious human qualities. Classics and philosophy are called there *literæ humaniores*. They are supposed to have an effect on character, and to be specially adapted for creating ministers of religion. The training of clergymen is, if any thing, the special object of Oxford teaching. All arrangements are made with a view to it. The heads of colleges, the resident fellows, tutors, professors, are, with rare exceptions, ecclesiastics themselves.

Well, then, if they have hold of the right idea, the effect ought to have been considerable. We have had thirty years of unexampled clerical activity among us: churches have been doubled; theological books, magazines, reviews, newspapers, have been poured out by the hundreds of thousands; while by the side of it there has sprung up an equally astonishing development of moral dishonesty. From the great houses in the city of London to the village grocer, the commercial life of England has been saturated with fraud. So deep has it gone that a strictly honest tradesman can hardly hold his ground against competition. You can no longer trust that any article that you buy is the thing which it pretends to be. We have false weights, false measures, cheating and shoddy every where. Yet the clergy have seen all this grow up in absolute indifference; and the great question which at this moment is agitating the Church of England is the color of the ecclesiastical petticoats.

Many a hundred sermons have I heard in England, many a dissertation on the mysteries of the faith, on the divine mission of the clergy, on apostolic succession, on bishops, and justification, and the theory of good words, and verbal inspiration, and the efficacy of the sacraments; but never, during these thirty wonderful years, never one that I can recollect on common honesty, or those primitive commandments, Thou shalt not lie, and Thou shalt not steal.

Classical philosophy, classical history and literature, taking, as they do, no hold upon the living hearts and imagination of men in this modern age, leave their working intelligence a prey to wild imaginations, and make them incapable of really understanding the world in which they live. If the clergy knew as much of the history of England and Scotland as they know about Greece and Rome, if they had been ever taught to open their eyes and see what is actually round them instead of groping among books to find what men did or thought at Alexandria or Constantinople fifteen hundred years ago, they would grapple more effectively with the moral pestilence which is poisoning all the air. . . .

Education always should contemplate this larger sphere, and cultivate the capacities which will command success there. Britain may have yet a future before it grander than its past; instead of a country standing alone complete in itself, it may become the metropolis of an enormous and coherent empire; but on this condition only, that her children, when they leave her shores, shall look back upon her, not—like the poor Irish when they fly to America—as a stepmother who gave them stones for bread, but as a mother to whose care and nurture they shall owe their after prosperity. Whether this shall be so, whether England has reached its highest point of greatness, and will now descend to a second place among the nations, or whether it has yet before it another era of brighter glory, depends on ourselves, and depends more than any thing on the breeding which we give to our children.

I shall be asked whether, after all, this earning our living, this getting on in the world, are not low objects for human beings to set before themselves. Is not spirit more than matter? Is there no such thing as pure intellectual culture? "Philosophy," says Novalis, "will bake no bread, but it gives us our souls; it gives us heaven; it gives us knowledge of those grand truths which concern us as immortal beings." Was it not said, "Take no thought what ye shall eat, or what ye shall drink, or wherewithal ye shall be clothed. Your Heavenly Father knoweth that ye have need of these things. Behold the lilies of the field, they toil not, neither do they spin. Yet Solomon in all his glory was not arrayed like one of these." This is not entirely a dream! But such high counsels as these are addressed only to few; and perhaps fewer still have heart to follow them. If you choose the counsels of perfection, count the cost, and understand what they mean. I knew a student once from whose tongue dropped the sublimest of sentiments; who was never weary of discoursing on beauty and truth and lofty motives; who seemed to be longing for some gulf to jump into, like the Roman Curtius—some "fine opening for a young man" into which to plunge and devote himself for the benefit of mankind. Yet he was running all the while into debt, squandering the money on idle luxuries which his father was sparing out of a narrow income to give him a college education; dreaming of martyrdom and unable to sacrifice a single pleasure!

The words which I quoted were not spoken to all the disciples, but to the Apostles who were about to wander over the world as barefoot missionaries.

For myself, I admire that ancient rule of the Jews that every man, no matter of what grade or calling, shall learn some handicraft; that the man of intellect, while, like St. Paul, he is teaching the world, yet, like St. Paul, may be burdensome to no one. It hurts no intellect to be able to make a boat or a house, or a pair of shoes or a suit of clothes, or hammer a horseshoe; and if you can do either of these, you have nothing to fear from fortune. "I will work with my hands, and keep my brain for myself," said some one proudly, when it was proposed to him that he should make a profession of literature. Spinoza, the most powerful intellectual worker that Europe had produced during the last two centuries, waving aside the pensions and legacies that were thrust upon him, chose to maintain himself by grinding object-glasses for microscopes and telescopes.

LITERATURE AS A PROFESSION TO LIVE BY.

Literature happens to be the only occupation in which the wages are not in proportion to the goodness of the work done. It is not that they are generally small, but the adjustment of them is awry. It is true that in all callings nothing great will be produced if the first object be what you can make by them. To do what you do well should be the first thing, the wages the second; but except in instances of which I am speaking, the rewards of a man are in proportion to his skill and industry. The best carpenter receives the highest pay. The better he works, the better for his prospects. The best lawyer, the best doctor, commands most practice, and makes the largest fortune. But with literature, a different element is introduced into the problem. The present rule on which authors are paid is by the page and the sheet; the more words the more pay. It ought to be exactly the reverse. Great poetry, great philosophy, great scientific discovery, every intellectual production which has genius, work, and permanence in it, is the fruit of long thought, and patient and painful elaboration. Work of this kind, done hastily, would be better not done at all. When completed, it will be small in bulk; it will address itself for a long time to the few and not to the many. The reward for it will not be measurable, and not obtainable in money except after many generations, when the brain out of which it was spun has long returned to its dust. Only by accident is a work of genius immediately popular, in the sense of being widely bought. No collected edition of Shakspeare's plays was demanded in Shakspeare's life. Milton received five pounds for "Paradise Lost." The distilled essence of the thought of Bishop Butler, the greatest prelate that the English Church ever produced, fills a moderate-sized octavo volume; Spinoza's works, including his surviving letters, fill but three: and though they have revolutionized the philosophy of Europe, have no attractions for the multitude. A really great man has to create the taste with which he is to be enjoyed. There are splendid exceptions of merit eagerly recognized and early rewarded—our honored English Laureate for instance, Alfred Tennyson, or your own countryman Thomas Carlyle. Yet even Tennyson waited through ten years of depreciation before poems which are now on every one's lips passed into a second edition. Carlyle, whose transcendent powers were welcomed in their infancy by Göethe, who long years ago was recognized by statesmen and thinkers in both hemispheres as the most remarkable of living men; yet, if success be measured by what has been paid him for his services, stands far below your Belgravian novelist. A hundred years hence, perhaps, people at large will begin to understand how vast a man has been among them.

Therefore, I say, if any of you choose this mode of spending your existence, choose it deliberately, with a full knowledge of what you are doing. Reconcile yourselves to the condition of the old scholars. Make up your minds to be poor: care only for what is true and right and good. On those conditions you may add something real to the intellectual stock of mankind, and mankind in return may perhaps give you bread enough to live upon, though bread extremely thinly spread with butter. . . .

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THOMAS CARLYLE.

Thomas Carlyle, essayist, biographer and historian, was born in 1795, at Ecclefechan, a small village in Dumfriesshire. After receiving rudimentary instruction at Annan, he entered the University of Edinburgh at the age of 14, where he remained till he was 21—passing through the regular curriculum, with special attention to mathematics, and later in the course to ethical and theological studies—spending his long vacations among the hills and along the rivers of his native district. For two years he devoted himself to teaching mathematics in Fifeshire, and in 1823 commenced his professional work in literature, by preparing articles for Brewster's *Edinburgh Encyclopedia*, and the *New Edinburgh Review*. In the same year he translated Legendre's *Geometry*, to which he prefixed an *Essay on Proportion*. In the year following, 1824, he published his translation of Göethe's *Wilhelm Meister*, and began a Life of Schiller in the *London Magazine*. In 1827 he married Miss Welch, and located himself at Craigenputtock, engaged in literary work, the outcoming of which, in part, was articles on Göethe and other German writers in the *Foreign Quarterly Review*, *Signs of the Times*, in Edinburgh Review, and *Sartor Resartus* in Fraser's Magazine. In 1834 he removed to Cheyne Row, Chelsea (London), where he still (1872) resides. In 1837 appeared *The French Revolution*; in 1839, his *Chastism*; in 1840, his *Hero Worship*; in 1843, *Past and Present*; in 1845, *Oliver Cromwell's Letters and Speeches*, with *Elucidation*; in 1848, the *Latter Day Pamphlets*; in 1851, *Life of John Sterling*; in 1860–4, the *Life of Frederick the Great*. In 1865 he was elected Rector of Edinburgh University, and delivered his Inaugural Address April 2, 1866, from which we take the following characteristic suggestions:

DILIGENCE AND HONESTY IN STUDY.

There is an advice I must give you—the summary of all advices, and doubtless you have heard it a thousand times; but you must hear it once more, for it is most intensely true, whether you believe it or not. That above all things the interest of your whole life depends on your being diligent and honest, now while it is called to-day, in this place, where you have come to get your education! Diligence! that includes in it all virtues that a student can have: I include in it all those qualities of conduct and attention that lead to the acquirement of real instruction in such a place. This is the seed-time of life—and as you sow, so will you reap; this the fluid condition of your mind, and as it hardens into habits, so will it retain the consistency of rock and of iron to the end. By diligence I mean honesty, not only as to time, but as to your knowledge. Count a thing as known only when it is clearly yours, and is transparent to you, so that you can survey it on all sides with intelligence. Don't flourish about with what you only know the outside, and don't cram with undigested fragments for examinations. Be modest, be humble, or assiduous, and as early as you can find out what kind of work you individually can do in this universe, and qualify yourself for doing it.

UNIVERSITIES SHOULD MAKE BOOKS AVAILABLE.

The old work of Universities has somewhat changed by the invention of printing, and there are some who think 'the true University of our days is a Collection of Books.' Men have not now to go in person to where a Professor is actually speaking; because in most cases you can get his doctrine out of him through a book; and can then read it, and read it again and again, and study it. That is an immense change, that one fact of Printed Books. And I am not sure that I know of any University in which the whole of that fact has yet been completely taken in, and the studies molded in complete conformity with it. What the Universities can mainly do for you,—what I have found the University did for me, is, That it taught me to read, in various languages, in various sciences; so that I could go into the books which treated of these things, and gradually penetrate into any department I wanted to make myself master of, as I found it suit me.

LEARN TO BE GOOD READERS AND GOOD WORKERS.

Learn to be discriminative in your reading; to read faithfully, and with your best attention, all kinds of things which you have a real interest in, a real not an imaginary, and which you find to be really fit for what you are engaged in. Of course, at the present time, in a great deal of the reading incumbent on you, you must be guided by the books recommended by your Professors for assistance towards the effect of their prelections. And then, when you leave the University, and go into studies of your own, you will find it very important that you have chosen a field, some province specially suited to you, in which you can study and work. The most unhappy of all men is the man who can not tell what he is going to do, who has got no work cut out for him in the world, and does not go into it. For work is the grand cure of all the maladies and miseries that ever beset mankind,—honest work, which you intend doing.

READING IN HISTORY.

As applicable to all of you, I will say that it is highly expedient to go into history; to inquire into what has passed before you on this Earth, and in the Family of Man.

The history of the Romans and Greeks will first of all concern you; and you will find that the classical knowledge you have got will be extremely applicable to elucidate that. There you have two of the most remarkable races of men in the world set before you, calculated to open innumerable reflections and considerations; a mighty advantage, if you can achieve it;—to say nothing of what their two languages will yield you, which your Professors can better explain; model languages, which are universally admitted to be the most perfect forms of speech we have yet found to exist among men. And you will find, if you read well, a pair of extremely remarkable nations, shining in the records left by themselves, as a kind of beacon, or solitary mass of illumination, to light up some noble forms of human life for us, in the otherwise utter darkness of the past ages; and it will be well worth your while if you can get into the understanding of what these people were, and what they did.

I believe, also, you will find one important thing not much noted, That there was a very great deal of deep religion in both nations. This is pointed out by the wiser kind of historians, and particularly by Ferguson, who is particularly well worth reading on Roman history,—and who, I believe, was an alumnus of our own University. His book is a very creditable work. He points out the profoundly religious nature of the Roman people, notwithstanding their ruggedly positive, defiant, and fierce ways. They believed that Jupiter Optimus Maximus was lord of the universe, and that he had appointed the Romans to become the chief of nations, provided they followed his commands,—to brave all danger, all difficulty, and stand up with an invincible front, and be ready to do and die: and also to have the same sacred regard to truth of promise, to thorough veracity, thorough integrity, and all the virtues that accompany that noblest quality of man, valor,—to which latter the Romans gave the name of 'virtue' proper (*virtus*, manhood), as the crown and summary of all that is ennobling for a man. In the literary ages of Rome, this religious feeling had very much decayed away; but it still retains its place among the lower classes of the Roman people. Of the deeply religious nature of the Greeks, along with their beautiful and sunny effulgences of art, you have striking proof, if you look for it. In the tragedies of Sophocles, there is a most deep-toned recognition of the eternal justice of Heaven, and the unfailing punishment of crime against the laws of God. I believe you will find in all histories of nations, that this has been at the origin and foundation of them all; and that no nation which did not contemplate this wonderful universe with an awe-stricken and reverential belief that there was a great unknown, omnipotent, and all-wise and all-just Being, superintending all men in it,—no nation ever came to very much, nor did any man either, who forgot that. If a man did forget that, he forgot the most important part of his mission in this world.

Our own history of England, which you will naturally take a great deal of pains to make yourself acquainted with, you will find beyond all others worthy of your study. For indeed I believe that the British nation,—including in that the Scottish nation,—produced a finer set of men than any you will find it possible to get any where else in the world. (*Applause.*) I don't know, in any history of Greece or Rome, where you will get so fine a man as Oliver Cromwell, for example. (*Applause.*) And we, too, have had men worthy of memory, in our little corner of the Island here, as well as others; and our history has had its heroic features all along; and did become great at last in being connected with world-history:—for if you examine well, you will find that John Knox was the author, as it were, of Oliver Cromwell; that the Puritan revolution never would have taken place in England at all, had it not been for that Scotchman. (*Applause.*) This is an authentic fact, and is not prompted by national vanity on my part, but will stand examining. (*Laughter and applause.*) . . .

HOW THE NOTABLE MEN BECOME SO.

I not only found the solution of every thing I expected there (Collins's *Peerage*), but I began gradually to perceive this immense fact, which I really advise every one of you who read history to look out for, if you have not already found it. It was that the Kings of England, all the way from the Norman Conquest down to the times of Charles I., had actually, in a good degree, so far as they knew, been in the habit of appointing as Peers those who *deserved* to be appointed. In general, I perceived, those Peers of theirs were all royal men of a sort, with minds full of justice, valor and humanity, and all kinds of qualities that men ought to have who rule over others. And then their genealogy, the kind of sons and descendants they had, this also was remarkable:—for there is a great deal more in genealogy than is generally believed at present. I never heard tell of any clever man that came of entirely stupid people. (*Laughter.*) If you look around, among the families of your acquaintance, you will see such cases in all directions;—I know that my own experience is steadily that way; I can trace the father, and the son, and the grandson, and the family stamp is quite distinctly legible upon each of them. So that it goes for a great deal, the hereditary principle.—in Government as in other things; and it must be recognized so soon as there is any fixity in things. You will remark, too, in your Collins, that, if at any time the genealogy of a peerage goes awry, if the man that actually holds the peerage is a fool,—in those earnest practical times, the man soon gets into mischief, gets into treason, probably,—soon gets himself and his peerage extinguished altogether, in short. (*Laughter.*)

From those old documents of Collins, you learn and ascertain that a peer conducts himself in a pious, high-minded, grave, dignified, and manly kind of way, in his course through life, and when he takes leave of life:—his last will is often a remarkable piece, which one lingers over. And then you perceive that there was kindness in him as well as rigor, pity for the poor; that he has fine hospitalities, generosities,—in fine, that he is throughout much of a noble, good and valiant man. And that in general the King, with a beautiful approximation to accuracy, had nominated this kind of man; saying, "Come you to me, sir. Come out of the common level of the people, where you are liable to be trampled upon, jostled about, and can do in a manner nothing with your fine gift; come here and take a district of country, and make it into your own image more or less; be a king under me, and understand that that is your function." I say this is the most divine thing that a human being can do to other human beings, and no kind of thing whatever has so much of the character of God Almighty's Divine Government as that thing, which, we see, went on all over England for about six hundred years. This is the grand soul of England's history. (*Cheers.*) It is historically true that, down to the time of James, or even Charles I., it was not understood that any man was made a Peer without having merit in him to constitute him a proper subject for a peerage. In Charles I.'s time, it grew to be known or said that, if a man was born a gentleman, and cared to lay out £10,000 judiciously up and down among courtiers, he could be made a Peer. Under Charles II. it went on still faster, and has been going on with ever-increasing velocity, until we see the perfectly breakneck pace at which they are going now (*A laugh*), so that now a peerage is a paltry kind of thing to what it was in those old times.

WISDOM, AND NOT PARTICULAR KNOWLEDGES.

And for the rest, in regard to all your studies and readings here, and to whatever you may learn, you are to remember that the object is not particular knowledges,—not that of getting higher and higher in technical perfections, and all that sort of thing. There is a higher aim lying at the rear of all that, especially among those who are intended for literary or speaking pursuits, or the sacred profession. You are ever to bear in mind that there lies behind that the acquisition of what may be called wisdom;—namely, sound appreciation and just decision as to all the objects that come round you, and the habit of behaving with justice, candor, clear insight, and loyal adherence to fact. Great is wisdom; infinite is the value of wisdom. It can not be exaggerated; it is the highest achievement of man: 'Blessed is he that getteth understanding.' And that, I believe, on occasion, may be missed very easily; never more easily than now, I sometimes think. If that is a failure, all is a failure!

ENDOWMENTS—DESIRABLE BUT NOT INDISPENSABLE.

Scotland should not be slow or slack in coming forward in the way of endowments. Money was never so abundant, and nothing that is good to be done with it. (*Hear, hear, and a laugh.*) No man knows,—or very few men know,—what benefit to get out of his money. In fact, it too often is secretly a curse to him. Much better for him never to have had any. But I do not expect that generally to be believed. (*Laughter.*) Nevertheless, I should think it would be a beneficent relief to many a rich man who has an honest purpose struggling in him, to bequeath some house of refuge, so to speak, for the gifted poor man who may hereafter be born into the world, to enable him to get on his way a little. To do, in fact, as those old Norman kings whom I have been describing; to raise some noble poor man out of the dirt and mud where he is getting trampled on unworthily, by the unworthy, into some kind of position where he might acquire the power to do a little good in his generation! I hope that as much as possible will be achieved in this direction; and that efforts will not be relaxed till the thing is in a satisfactory state.

I am bound, however, to say that it does not appear as if, of late times, endowment were the real soul of the matter. The English, for example, are the richest people in the world for endowments in their Universities; and it is an evident fact that, since the time of Bentley, you can not name any body that has gained a European name in Scholarship, or constituted a point of revolution in the pursuits of men in that way. The man who does so is a man worthy of being remembered; and he is poor, and not an Englishman. One man that actually did constitute a revolution was the son of a poor weaver in Saxony; who edited his Tibullus, in Dresden, in a poor comrade's garret, with the floor for his bed, and two folios for a pillow; and who, while editing his Tibullus, had to gather pea-shells on the street and boil them for his dinner. That was his endowment. (*Laughter.*) But he was recognized soon to have done a great thing. His name was Heyne. (*Cheers.*) I can remember, it was quite a revolution in my mind when I got hold of that man's edition of Virgil. I found that, for the first time, I understood Virgil; that Heyne had introduced me, for the first time, into an insight of Roman life and ways of thought: had pointed out the circumstances in which these works were written, and given me their interpretation. And the process has gone on in all manner of developments, and has spread out into other countries.

MORE WISDOM AND LESS SPEECH—MODESTY—HEALTH.

There is very great necessity indeed of getting a little more silent than we are. It seems to me as if the finest nations of the world,—the English and the American, in chief,—were going all off into wind and tongue. (*Applause and laughter.*) But it will appear sufficiently tragical by-and-by, long after I am away out of it. There is a time to speak, and a time to be silent. Silence withal is the eternal duty of a man. He won't get to any real understanding of what is complex, and what is more than aught else pertinent to his interests, without keeping silence too. 'Watch the tongue,' is a very old precept, and a most true one.

I don't want to discourage any of you from your Demosthenes, and your studies of the niceties of language, and all that. Believe me, I value that as much as any one of you. I consider it a very graceful thing, and a most proper, for every human creature to know what the implement which he uses in communicating his thoughts is, and how to make the very utmost of it. I want you to study Demosthenes, and to know all his excellences. At the same time, I must say that speech, in the case even of Demosthenes, does not seem, on the whole, to have turned to almost any good account. He advised next to nothing that proved practicable; much of the reverse. Why tell me that a man is a fine speaker, if it is not the truth that he is speaking? Phocion, who mostly did not speak at all, was a great deal nearer hitting the mark than Demosthenes. . . .

I need not hide from you, young gentlemen,—and it is one of the last things I am going to tell you,—that you have got into a very troublous epoch of the world; and I don't think you will find your path in it to be smoother than ours has been, though you have many advantages which we had not. Man is becoming more and more the son, not of Cosmos, but of Chaos. He is a disobedient, discontented, reckless, and altogether waste kind of object (the commonplace man is, in these epochs); and the wiser kind of man,—the select few, of whom I hope you will be part,—has more and more to see to this, to look vigilantly forward; and will require to move with double wisdom. Will find, in short, that the crooked things he has got to pull straight in his own life all round him, wherever he may go, are manifold, and will task all his strength.

On the whole, avoid what is called ambition; that is not a fine principle to go upon,—and it has in it all degrees of *vulgarity*, if that is a consideration. 'Seekest thou great things, seek them not:' I warmly second that advice of the wisest of men. Don't be ambitious; don't too much need success; be loyal and modest. Cut down the proud towering thoughts that get into you, or see that they be pure as well as high. There is a nobler ambition than the gaining of all California would be, or the getting of all the suffrages that are on the Planet just now. (*Loud and prolonged cheers.*)

Finally, gentlemen, I have one advice to give you, which is practically of very great importance, though a very humble one. In the midst of your zeal and ardor,—for such, I foresee, will rise high enough, in spite of all the counsels to moderate it that I can give you,—remember the care of health. I have no doubt you have among you young souls ardently bent to consider life cheap, for the purpose of getting forward in what they are aiming at of high: but you are to consider throughout, much more than is done at present, and what it would have been a very great thing to be attended to continually; that you are to regard that as the very highest of all temporal things for you. (*Applause.*) There is no kind of achievement you could make in the world that is equal to perfect health. What to it are nuggets and millions? The French financier said, "Why, is there no sleep to be sold!" Sleep was not in the market at any quotation. (*Laughter and applause.*)

[MR. CARLYLE in this address, as well as in an article on Göethe in the first volume of his collected Essays, refers to a chapter in *Wilhelm Meister's Travels*, with this emphatic commendation—'that there are some ten pages of that which, if ambition had been my only rule, I would rather have written, been able to write, than all the books that have appeared since I came into the world.' See American Journal of Education, Vol. XXIII.—*Göethe's Pedagogy.*]

MILITARY SYSTEM AND EDUCATION IN ENGLAND.

I. MILITARY SYSTEM.

The British army originated in the feudal system, by which the great barons were bound to furnish a contingent to the army of the State; and their vassals were bound to attend them in person, and to furnish each the contributions in men, horses, arms, and other materials of war, for which he was liable by the tenure on which he held his lands. When regal power absorbed the privileges of the great feudatories, the people were expected to provide themselves with arms, and, in case of invasion, to respond to the summons issued through officers commissioned by the sovereign to array the fittest men for service in each county. In the time of Henry VIII, lord-lieutenants and deputy-lieutenants of counties were first appointed as standing officers for assembling and mustering the military forces. For a time, contracts were made with "captains," who undertook to provide, clothe, and feed a certain number of fighting men for a given money allowance. In the reign of Charles I, the important question arose, whether the King of England did or did not possess the right to maintain a military force without the express consent of Parliament. Charles II, was compelled to abandon all control of the army, except a body guard of 5,000 men, sanctioned by Parliament. These regiments still exist, and are proud of their genealogy. They are the First Foot Guards, Coldstream Guards, Life Guard, Oxford Blues, the Royal Scots, and the Second Queen's Royals."* The Declaration of Rights, in the time of William and Mary, settled in positive terms "that the raising and keeping of a standing army in time of peace, without consent of Parliament, is contrary to law." The first Mustering Act was passed in 1689, to last for six months; but it has been annually renewed ever since, except in three particular years; and it constitutes the only warrant on which the whole military system of England is exercised by the sovereign with the consent of Parliament. For 172 years, with only three interruptions, the ministers of the crown have annually applied to Parliament for permission to raise a military force and for money to defray expenses. The sovereign can make war and bestow military employment and honors; but the House of Commons can refuse supplies.

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* Two regiments created in the reigns of Richard III, and of Henry VIII, the first styled *Gentlemen Pensioners*, or *Gentlemen at Arms*, consisting originally exclusively of noblemen, and the latter, *Yeomen of the Guard*, still exist. The latter is the only body that has the privilege of traversing London with flags flying, drums beating, and fixed bayonets.

Military service in England is voluntary, except in rare cases, and then only in the militia. As the chances of promotion from the ranks are small, the recruits are drawn from the most necessitous classes of the community, or the least fitted for industrial pursuits. The system of recruiting, with the bounty and machinery of deception is the most characteristic feature of the British army as compared with those of Europe, and makes the distinction between officers and men more broad than in any other service.

The British army, in its completeness, is theoretically commanded by the sovereign, assisted by the secretary of state for war in some matters, and by the commander-in-chief in others. The component parts are the household troops, the infantry of the line, the ordnance corps, comprising artillery and engineers, and the marines. There are also certain corps, raised and belonging to the principal colonies; the troops in India; the yeomanry cavalry; the dockyard battalions; the volunteer artillery and rifles; the enrolled pensioners, etc. In 1814, the regular army reached 200,000, and at the close of the war, 10,000 officers were retained on half pay. In 1860–61, in the army estimates, provision was made for the following force, viz.:

	Home and Colonies.	India.	Total.
Cavalry	11,667	7,243	18,910
Infantry	103,169	66,345	169,514
Artillery	22,675	5,482	28,157
Engineers	4,730	——	4,730
Staff & Depot	1,121	13,420	14,541
Total	143,362	92,490	235,852

Under the column "India" are included only troops *sent* to India, and paid for out of the Indian revenues. Of the total 235,852 forces, 10,459 are officers, 17,670 non-commissioned officers, and 207,723 rank and file. For the use of this army, 24,342 horses are provided. The total expenditure sanctioned by Parliament in 1860 was £14,800,000, viz.:

Military Pay and Allowances, £5,500,000; Civil Salaries and Wages, £1,800, 000; Stores and Works of every kind, £ 5,400,000; Pensions, Retired Pay, &c. £2,100,000.

The military force of various kinds within the United Kingdom, excluding the troops in East India, on the 1st of June, 1860, was 323,259, viz.:

Regulars (service companies,) 68,778; Regulars (depot companies,) 33,302, Embodied Militia, 15,911; Disembodied Militia—Effectives, 52,899; Yeomanry Cavalry—Effectives, 15,002; Enrolled Pensioners—Effectives, 15,000; Volunteer Rifles and Artillery, 122,867.

The total force of the United Kingdom in 1870–71, was as follows:

				Total.
Officers on the General and Departmental Staff,				1,239
Regiments.	Officers.	Non-com., &c.	Rank and file.	
Royal Horse Artillery,	78	138	1,834	2,050
Life-Guards and Horse-Guards,	81	192	1,029	1,302
Cavalry of the Line,	465	969	7,733	9,267
Royal Artillery,	661	1,550	12,866	15,087
Riding Establishment,	7	13	205	225
Royal Engineers,	539	564	3,879	4,836
Army Service Corps,	8	386	1,801	2,198
Foot-Guards,	237	453	5,220	5,910
Infantry of the Line,	2,934	6,468	51,990	61,392
Army hospital corps,	1	165	694	860
West India Regiments,	104	150	1,680	1,834
Colonial corps,	58	149	1,632	1,839
Total,	6,276	11,197	90,593	108,066
Depots of Indian Regiments.				
Cavalry,	27	54	513	594
Infantry,	200	600	5,000	5,800
Total,	227	654	5,513	6,394
Recruiting and Teaching Estab'ts.				
Cavalry Riding School,	2	2	—	4
Infantry Depots,	5	9	—	14
Recruiting Establishments,	6	17	—	23
Inst. in Gunnery and Engin'ing,	10	57	62	129
Total,	23	85	62	170
Training Schools and Factories.				
Cadet Company, Woolwich,	10	20	9	39
Royal Mil. College, Sandhurst,	17	30	1	48
Regi'al Schools and Factories,	32	281	7	320
Total,	58	331	17	407

The total force of officers and men was 115,037, viz.

General and Department Staff,	1,239
Regiments,	108,066
Depots of Indian Regiments,	6,394
Recruiting and Teaching Establishments,	170
Training Schools and Factories,	407

The British forces in India, exclusive of depots at home, comprised the following troops, in 1870–71:

	Officers.	Non-Com.	Men.	Total.
Royal Horse Artillery,	200	253	2,680	3,133
Cavalry of the Line,	225	424	3,672	4,321
Royal Artillery and Engineers,	1,016	795	7,936	9,747
Infantry of the Line,	1,500	3,262	41,000	45,762
Total,	2,941	4,734	55,288	63,963

In addition to the troops above mentioned the army estimates include appropriations for four classes of reserved or auxiliary forces, viz.:

1. Disembodied Militia,	128,971	officers	and men.
2. Yeomanry Cavalry,	15,435	"	"
3. Volunteers,	25,688	"	"
4. Enrolled pensioners,	31,102	"	"
Total enrolled number,	201,196	"	"

In England and Wales the Militia Establishment comprises 42 regiments, with 5,066 officers; in Scotland, 16 regiments and 670 officers; in Ireland, 48 regiments, with 3,463 officers.

By Act of 1870, in case of invasion, rebellion, or insurrection, or of imminent danger thereof, the Militia, in pursuance of an order of Her Majesty in council, can be called out (the whole or any part) and embodied for actual service; but when so called out, her proclamation must be communicated to Parliament within ten days. By recent Royal Warrant, a lieutenant of the Militia is made eligible to appointment of sub-lieutenant in the Regular Army, and in the localization of the military force of the United Kingdom, the Militia, Yeomanry and Volunteers, are to be brought into closer connection with the Regular Army.

The total cost of the British army, voted by Parliament in 1870–71, was £13,093,500, besides a supplementary vote of £2,000,000 towards defraying the expenses of the military and naval services of the kingdom. Of the regular expenses, it appears from official statements that £893,200 were for the Militia and Inspection service; £81,900 for the Yeomanry; £412,400 for volunteers; and £76,000 for enrolled pensioners and army reserve force.

EDUCATIONAL ESTABLISHMENTS FOR THE ARMY.

The sum of £140,700 was devoted to military education, in the estimates for 1871, when the educational establishments provided for the army were as follows:

Royal Military College at Sandhurst, preparatory for Infantry and Cavalry Officers.
Royal Military Academy at Woolwich, for service in the Artillery and Engineers.
Royal School of Military Engineering at Chatham.
Staff College at Woolwich.
Advanced Class of Artillery Officers at Woolwich.
School of Gunnery at Shoeburyness.
Survey Classes at Aldershot.
School of Musketry at Hythe.
Army Medical School at Netley.
Royal Hibernian Military School at Dublin.
Regimental Schools for Children of Soldiers.
Garrison Schools and Libraries for Adults.
Schools and Asylums for Orphan Children of Soldiers at Dublin and Chelsea.
Training School for Army Schoolmasters in Chelsea Military Asylum.
Military School of Music at Kneller Hall.

II. ROYAL NAVY.

The administration of the Navy of the United Kingdom is vested in the Board of Admiralty, composed of five members, who are styled "Lord Commissioners for executing the office of Lord High Admiral," which was formerly charged with all naval matters. The First Lord Commissioner is a member of the Cabinet, and dispenser of patronage, and, with his associates, goes out with the Premier.

The effective strength of the Navy in February 1, 1869, was:

Classes of Ships.	*Steam.*			*Sailing.*	*Total.*
	AFLOAT.		BUILDING.	AFLOAT.	
	Iron.	Wood.	Iron.		
Armor-plated ships, 1st Class,	1	–	1	....	3
" " 2nd "	3	–	3	....	6
" " 3d "	5	4	–	....	9
" " 4th "	3	5	–	....	8
" " 5th "	4	–	–	....	4
" " 6th "	–	2	–	....	2
" " Sloops and gun-boats,	3	2	–	....	5
" " Special, with turrets,	5	1	5	....	11
" " Floating batteries,	3	1	–	1	5
	27	15	9		
Total iron-clads,	42		9	1	52
Ships of the line (screw),	43		2	2	47
Frigates (screw),	29		–	–	29
Frigates (paddle),	3		–	1	4
Block ships (screw),	1		–	2	3
Corvettes (screw),	24		–	–	24
Sloops (screw),	33		–	1	34
" (paddle),	7		–	1	8
Small vessels (paddle),	8		–	–	8
Dispatch vessels (paddle),	4		–	–	4
Gun vessels (screw and double screw),	50		1	–	51
Gun-boats (screw),	58		1	9	68
Tenders, tugs, &c., (screw),	14		–	–	14
" " " (paddle),	38		–	–	38
Mortar ships (screw),	—		–	2	2
Troop and store ships (screw),	11		–	–	11
" " (paddle),	1		–	–	1
Transports for India reliefs (screw),	5		–	–	5
Yachts (paddle),	4		1	–	5
Total screw,	310		14	–	324
" paddle,	65		1	–	66
Grand total,	375		15	18	408

Not included in the above list are several ships for the defense of the colonies. The total naval force, August 30, 1870, was:

In Commission—238 ships, of 57,205 horse-power, 1,984 guns and 314,449 tonnage. *In Reserve, &c.*, 318 ships, 64,286 horse-power, 3,610 guns, and 318,845 tonnage. The total number of officers, seamen, boys and marines, in 1870–71, was 55,430, besides 4,300 in the coast-guard and 1,270 in the Indian service. Among the officers were 143 flag officers; 29 superintending dockyards, and 3,193 other commissioned officers on service.

III. MERCANTILE MARINE.

The Mercantile Marine of the United Kingdom in number of vessels, their registered tonnage, and men employed, together with the value of property and number of passengers transported in them, exceeds that of any other country. The total number of vessels in the home and foreign trade, registered in 1869, was 21,881, with a tonnage of 5,575,303, employing 202,477 men, and freighted with imports and exports to the total value of 532,475,266*l.*

All matters relating to merchant ships and seamen, and the mercantile marine generally, are committed to the general superintendence of the Board of Trade, which, as constituted in 1786, is composed of certain high officers, (members of the Privy Council), and its President is a Cabinet officer. To this Board all consular officers, all officers of customs abroad, and all local marine boards and shipping masters must make reports in matter and form as required. Inspectors, duly appointed by this Board, may visit any ship, examine any registry, machinery, boats, equipments, &c., to ascertain if they are conformable to law. In every seaport a Shipping Master is appointed by the Local Marine Board, who must keep register of names and character of seamen, facilitate their engagement and discharge, as well as the apprenticeship of boys to sea-service. The Local Board must provide for the examination of persons who intend to become masters or mates according to rules laid down by the Board of Trade. And to such as pass a satisfactory examination as to sobriety, experience, ability, and general good conduct on board ship, shall be given a certificate of competency; and to those who have served as masters or mates, under certain conditions, a certificate of service with specifications must be given. Shipping Masters must assist, when applied to by parents or guardians, or masters of ships, in apprenticing boys to the sea-service. No person can be employed as master or mate, who does not hold a certificate of competency, and under certain conditions, of service. Opportunities of preparing for these examinations are now provided in all the large seaports, in Navigation Schools; and the Government, through the Department of Science and Arts, encourages the study of astronomy, navigation, steam and steam machinery, and other branches, which are serviceable to officers in command of vessels, whether propelled by sails or engines, by making appropriations of money to schools according to the number of pupils who pass satisfactory examinations in these studies.

COUNCIL OF MILITARY EDUCATION.

HISTORICAL NOTICE.

In the debates which took place in Parliament during the Crimean war, in the year 1855, attention was frequently drawn to the necessity of improving the professional education of officers, and more particularly of providing means of instruction for, and requiring special qualifications from, those who were candidates for the staff. In the course of the same year a great alteration was made in the principles which had hitherto regulated preparatory instruction for the army, by abandoning, so far as the scientific corps were concerned, the system of juvenile military education, and throwing admission to the Artillery and Engineers open to public competition among candidates whose age would afford the presumption that their general education was already completed. At the beginning of 1856 three Commissioners, Lieut.-Colonel Yolland, R.E., Lieut.-Colonel Smythe, R.A., and the Rev. W. C. Lake, were appointed by Lord Panmure, then Secretary of State for War, "to consider the best mode of reorganizing the system for training officers for the scientific corps"; and for this purpose were directed to visit the military schools of France, Prussia, Austria, and Sardinia. The instructions issued to the Commissioners informed them that it was already decided that admission to the scientific corps should be obtained by open competition, and that the age of candidates admitted to the examination should be from 17 to 20.

While the Commissioners were still engaged in their inquiries, the question of military education was frequently brought before the notice of Parliament in the course of the session of 1856, more particularly by Mr. Sidney Herbert, who, in an elaborate speech on the 5th of June, explained to the House of Commons the details of a general scheme of education for officers of all branches of the service, the outline of which he had previously sketched out while Secretary at War in 1854, in a letter to the Commander-in-Chief.

The subject of military education was one which at this time engaged the serious attention both of the Government and the public. Toward the close of the year, Major-General Lefroy (then Colonel Lefroy, and employed at the War Office as artillery adviser to the Secretary of State) was directed by Lord Panmure to draw up a general scheme for the education of officers; and numerous plans, with a similar object, were about the same period proposed for the consideration of the Secretary of State.

The military educational establishments which existed in 1856 were as follows :

The Royal Military College at Sandhurst, comprising a senior and junior department.	Under the control of the Commander-in-Chief.
The Royal Military Academy at Woolwich.	Under the control of the Clerk of the Ordnance.
The Ordnance School at Carshalton, a preparatory establishment to the Academy.	
The Department of Artillery Studies at Woolwich.	
The Royal Engineer Establishment at Chatham.	
The East India Military College at Addiscombe.	Under the Court of Directors of the East India Company.
The School of Musketry at Hythe.	Under the control of the Commander-in-Chief.
The Royal Military Asylum at Chelsea, comprising a training school for army schoolmasters, and a model school for children.	Under the control of the Deputy Secretary at War.
The Royal Hibernian School at Dublin.	
Garrison and regimental schools for soldiers and children.	Under the control of the Chaplain-General.

Up to this period no systematic organization for the direction of military education had prevailed in this country; the various educational establishments were under the control of separate departments, and no single authority exercised any general supervision over them. The appointment of a Director-General of Military Education had been already advocated in Parliament by Mr. Sidney Herbert, and the institution of a special department to superintend the whole system of education for the army was one of the main features both of Colonel Lefroy's and of all the other schemes brought under the consideration of Lord Panmure at this period.

The Commissioners appointed in 1856, after having visited the military schools of the Continent, presented their Report in January, 1857. In this Report, although their instructions had more particularly directed their attention to the training of officers for the scientific corps, they touched upon several points connected with the education of officers of the army generally. One of the changes most strongly recommended by them was the formation of a special Board of Military Education. "We consider it of the first importance," their Report says, "that military education in this country should be regarded as a whole, and that perfect unity of system and harmony in its working should be made to prevail. This, we conceive, can only be done by bringing military education generally under the control of one head, the Secretary of State for War; and to effect this, a Board or Section of Military Education should be formed, as part of the establishment of the War Office." The Report adds: "The creation of such a Section appears to us far more important than any other single object we can recommend." The Commissioners also stated that after careful consideration, they recommended the combined action of a Board in preference to the undivided authority of a single individual, on the ground of the variety of knowledge and experience required for the proper treatment of educational questions.

The appointment of the Council of Military Education was the first result of the recommendations of the Commissioners. Its institution was proposed in a letter from the Commander-in-Chief to the Secretary of State for War on the 6th of April, 1857, and as originally constituted, it consisted of the Commander-in-Chief as *ex officio* president, a Major-General as vice-president, and two field officers as members. The appointment of the Council, although the members commenced their duties at once, was not officially gazetted until June.

The functions of the Council, however, did not in the first instance extend to a general superintendence over the whole system of military education. Almost simultaneously with their institution an Inspector-General of Army Schools was appointed under the Secretary of State for War, to whom the management of all institutions connected with the education of soldiers and children, which had previously been in the hands of the Chaplain-General, was entrusted. Nor was the supervision of the Council even over the education of officers at first general, as the Royal Military Academy at Woolwich remained under the management of the War Office (under which department it had been placed on the abolition of the office of Master-General of the Ordnance), and the examinations for admission to it were conducted by a separate Board of Examiners, under the superintendence of Canon Moseley.

The instructions issued to the Council on their first appointment directed their attention more especially to the organization of a Staff College, the revision of the system of examinations for direct appointments to the army, the amalgamation of Woolwich and Sandhurst, and the professional instruction and examination of officers after entering the service. On all these questions they submitted reports in the course of the year, and at the beginning of 1858 they commenced to conduct the examinations in connection with the Staff College and the Cadet College at Sandhurst, although these establishments were not formally put under their authority until, by a Royal Warrant of the 1st of October, 1858, the Council were appointed Visitors of the Royal Military College. The examinations of officers for direct appointments to the staff, which had been instituted in 1857, were also placed under the superintendence of the Council in 1858; but at a later period, the portion of these examinations which has more especial reference to matters of drill and regimental duty was, on the recommendation of the Council themselves, removed from their control, with the view of its being conducted by a Board of Officers appointed by the Adjutant-General.

At the beginning of the year 1858, the office of Secretary to the Council of Military Education was created, and in June of the same year an augmentation of their number took place by the addition of two new members,—one a field officer, the other a civilian, the Rev. Canon Moseley. The constitution of the Council as then fixed continues to the present day, and consists of the Commander-in-Chief as *ex officio* president, a vice-president, and four members, one being a civilian.

The appointment of a civilian as a member of the central Board of Military Education had been recommended by the Commissioners of 1856, on the ground of the close connection between military and civil educational questions. The decision to carry out this recommendation, simultaneously with an augmentation in the strength of the Council, appears to have been connected with the determination arrived at, to place the superintendence of the Academy at Woolwich—the competitive examinations for admission to which had hitherto been conducted by Canon Moseley—in the hands of the Council.

They were formally appointed Visitors of the Academy in August, 1858, their control over the education of the officers of the army being now made almost entirely general. The powers of the Council, however, in regard to Woolwich appear, probably from the fact of their not being defined by Royal Warrant, to be theoretically somewhat less extensive than those possessed by them over Sandhurst, as the recommendation of the appointment of professors, which in the case of the latter college is formally vested in the Council, is at the Academy left to the Lieutenant-Governor.

In October, 1859, the Indian Military College at Addiscombe was placed under the supervision of the Council, and the examinations for admission to it were conducted by them until the close of the establishment in 1861.

In 1860, the superintendence of army schools, garrison libraries, recreation rooms, the Royal Military Asylum at Chelsea, and the Royal Hibernian School at Dublin, were transferred from the Secretary of State for War to the Council.

In 1864, the Advanced Class of Artillery Officers, on its institution, was placed under the control of the Council. Since this date the whole system of army education has been superintended by that body, with the exception of the examinations of officers for promotion, the School of Musketry at Hythe, and the more peculiarly regimental institutions which exist in the Department of Artillery Studies, the School of Gunnery at Shoeburyness, and the School of Military Engineering at Chatham, for the special instruction of officers of the scientific corps. The Survey Class at Aldershot, though not formally is indirectly subject to their supervision.

1. ORGANIZATION AND DUTIES IN 1869.

The Council of Military Education consists of the Duke of Cambridge, Field Marshal Commanding-in-Chief, *President;* Major-General W. C. E. Napier, *Vice-President;* Major-General Sir Fred. Abbott, of the Royal Engineers; Col. Pocklington and Col. Hamley, of the Royal Artillery; Rev. Canon Moseley, civilian; and Capt. Greentree, *Secretary.*

Military Schools and Examinations.

1. To recommend to the Commander-in-Chief, and the Secretary of War, gentlemen for the appointment of examiners in the army examinations.
2. To recommend professors and instructors for the Advanced Class of Artillery Officers, the Staff College, the Royal Military Academy, and the Royal Military College.

3. To examine, by means of their staff of examiners, officers for direct appointment to the staff, chiefly the personal staff, and aids-de-camp and assistant military secretaries.

4. To examine officers of artillery for admission to the Advanced Class, and for certificates on quitting it.

5. To examine officers for admission to the Staff College, probationarily after a year's residence, and for qualification for the general staff on quitting the College.

6. To examine candidates for admission to the Royal Military Academy at Woolwich, and for qualification for commissions in the Royal Artillery and in the Royal Engineers on quitting that establishment.

7. To examine candidates for admission to the Royal Military College at Sandhurst, and for qualification for commissions in the army on their quitting the College.

8. To examine candidates for direct commissions in the cavalry, guards, and line.

9. To visit the several military colleges whenever they consider it desirable.

10. To report to the Commander-in-Chief on all questions connected with the education of candidates for the army, or with the educational departments of the several military schools.

Army Schools, Regimental and Garrison Libraries and Reading Rooms.

1. To receive and consider all applications for training schoolmasters or schoolmistresses; the usual course of procedure in these cases is annexed.

2. The appointment of trained schoolmasters and schoolmistresses, according to the regulations.

3. The appointment of acting schoolmasters and schoolmistresses, when trained masters and mistresses cannot be provided.

4. The appointment of civilian schoolmasters in embodied regiments of militia under special regulations as annexed.

5. The transfers of schoolmasters and schoolmistresses from one regiment or garrison school to another, as circumstances may require.

6. Promotion of schoolmasters and schoolmistresses from one class to another according to the regulations.

7. To receive and consider all communications from commanding officers on matters relating to the appointment of schoolmasters and schoolmistresses their discipline, application for leave to marry, furlough, etc.

8. To receive the monthly report of schools, prescribed by Article 16 of the Schools Regulations, and to consider the same, and take such proceedings thereon as may appear necessary.

9. The periodical inspection of all military schools, and of the Royal Military Asylum, Chelsea, and the Royal Hibernian School, Dublin.

10. To provide for and superintend the half yearly examination at the Royal Military Asylum, Chelsea.

11. The supply of suitable apparatus for the illustration of lectures for the instruction and entertainment of soldiers, according to the rules laid down by the Secretary of State.

12. The general supervision of regimental and garrison libraries and reading rooms.

13. To consider applications for, and appoint librarians at rates of pay previously authorized by the Secretary of State.

14. To supply games, and other authorized articles for reading rooms, according to the rules annexed.

15. To receive the quarterly reports of the state of barrack libraries in duplicate, and to consider any recommendation which may be made therein; one copy to be forwarded to the Secretary of State for War, with the recommendations of the Council recorded thereon, should any be necessary.

16. To make out requisitions upon the War Office for additions to libraries, when necessary, within the annual amount granted by Parliament.

17. To receive and consider the half yearly reports of artillery and engineer libraries in duplicate, in aid of which a grant of money will be made annually to each brigade of artillery and company of engineers by the Secretary of State, on the recommendation of the Council of Military Education; one copy to be forwarded to the Secretary of State, with any remarks thereon which may appear called for, the other to be retained by the Council.

18. Hospital libraries and the schools and libraries of disembodied regiments of militia will remain under the Secretary of State for War.

19. Upon all matters connected with either schools or libraries, not specified above, and which may involve expense, reference should be made to the Secretary of State for War, previously to any decision being arrived at.

EXAMINATIONS FOR COMMISSIONS AND PROMOTIONS.

I. EXAMINATIONS FOR DIRECT COMMISSIONS.

HISTORICAL NOTICE.

PREVIOUSLY to the year 1849, no educational qualifications were required as a condition of obtaining a commission, except from officers appointed to the scientific corps—admission to which could only be obtained by passing through the Royal Military Academy at Woolwich—and from the small proportion of officers, scarcely amounting, at that time, to one sixth of the whole number annually obtaining commissions, who entered the other branches of the service from the Royal Military College at Sandhurst. Examinations for admission to the army generally were first instituted by the Duke of Wellington, when Commander-in-Chief, in 1849. The examination, in addition to general subjects of elementary education, included the professional subject of fortification, in which the candidate was required to have read some easy work on the subject, and to have received some instruction in drawing. This requirement was subsequently somewhat modified; and the knowledge of fortification afterward exacted from a candidate was, "to be able to trace upon paper, in presence of the examiners, a front of fortification according to Vauban's first system, and also the profile of a rampart and parapet." In other subjects, modifications were also introduced; but the general character of the examinations remained much the same as originally established, and the regulations introduced by the Duke of Wellington, in 1849, continued substantially in force, until the general revision of the system of military education, which took place in 1857. It appears, however, from the evidence given by Lord Panmure, before the Royal Commission on the Purchase System, that, during the Crimean war, the stringency of the examinations was very much relaxed.

The examinations were held at Sandhurst by the professors of the College, in the presence of the Lieutenant-Governor, and were conducted to a great extent *vivâ voce*. The Select Committee of the House of Commons on Sandhurst (1855) did not make any recommendation in regard to these examinations, but stated in their report that in the only branch of the examination which was of a military character, namely, fortification, the knowledge required would easily be mastered in a week. The character of the examination, however, appears to have been very generally regarded with dissatisfaction. Mr. Sidney Herbert, when Secretary at War, in 1854, criticised it severely, as being "too technical, too limited, and within its limits too severe," and as leading necessarily to a candidate cramming up a few books which happened to be in use at Sandhurst, without affording any test of general education. He contemplated at that time a revision of the examinations, and the institution of a special board of examiners, in place of the Sandhurst professors, for the purpose of conducting them; and the Treasury, in connection with this subject, suggested that the machinery proposed for the object in view should be combined, as far as practicable, with that about to be established for examining candidates for the Civil Service.

The outbreak of the Crimean war prevented Mr. Sidney Herbert's proposals, which were connected with a general plan for the instruction of officers, from being carried into effect; and in 1856, Lord Panmure, before the Purchase System Commission, spoke of the defects of the existing examinations in nearly the same terms as those used by Mr. Herbert in 1854. After stating that they led to a system of cramming up particular books, he laid down the principle that the examination "should be such as young men may be supposed capable of passing without having any particular professional education. It ought to be upon general subjects, such as a young man ought to become acquainted with during his passage through any high educational establishment in this country."

The various schemes for the reorganization of military education brought under the notice of Lord Panmure, at the end of 1856, proposed improvements in the system of examinations for admission to the army; and nearly all the authorities consulted on the subject at that time appear to have concurred in the opinion that the examinations should be strictly non-professional, and should be confined to requiring proof on the part of the candidates of a knowledge of the ordinary subjects of liberal education. The commissioners appointed in the same year to consider the training of officers for the scientific corps also recommended that the examination of candidates for commissions, who did not pass through a military college, should be of a general, and not of a special, character.

The Council of Military Education, on their appointment, in April, 1857, were instructed "to revise the whole system of examination for direct appointments to the army," which is at present very defective; and this subject was, in fact, the first of those referred to in their instructions which they were directed to take into consideration. After consultation with the head masters of some of the chief public schools of the country, with the view of ascertaining the amount of knowledge which might fairly be expected from young men of 17, the Council proposed a scheme of examination based on the fundamental principle that the examination should be entirely non-professional, and confined to subjects which form the course of ordinary liberal education at civil schools. Regulations founded upon the proposal of the Council were issued on the 1st of August, 1857, and it was announced that they would come into operation at the beginning of 1858. These regulations were subsequently modified in some of their details, even before the first examination was held under the new system; further modifications have been from time to time introduced in them, without, however, affecting their general character; and the scheme proposed by the Council of 1857 has, in its main principles, formed the basis of all the regulations under which examinations for direct commissions have been held to the present time.

It appears, however, from the evidence given before the Commission of 1869, that it has been found necessary, from time to time, to diminish the difficulty of the examinations, owing to the number of failures among the candidates, and that the present standard is considerably lower than that originally established. An acquaintance with French, English history and geography, and drawing, was at first an indispensable condition of qualification, but is now no longer required; the obligatory subjects of examination have thus been reduced from five to two—mathematics and English—while, at the same time, the amount of mathematical knowledge formerly exacted has been reduced.

The first examination under the new system took place in February, 1858. Even before this, at the end of 1857, the place of examination had been transferred from Sandhurst to

London, and the method of conducting the examinations by printed papers, instead of by *vivâ voce*, had been adopted. The examinations have, ever since that period, been conducted by examiners appointed by the Council of Military Education, and have, as a rule, been held half yearly. By a regulation which has been for some years in force, candidates for direct commissions are also permitted to be examined at foreign stations. The examination is, in this case, conducted in the presence of a board appointed by the officer commanding the station; but the method of examination is, in all other respects, identical with that adopted at home. The examination papers are forwarded by, and the candidates' replies are returned to, the Council of Military Education.

The plan proposed by the Council was intended to regulate admission to the army in ordinary times of peace; but almost immediately after it had been formally approved, and before it had actually come into operation, the pressure occasioned by the outbreak of the Indian Mutiny led to an abnormal condition of circumstances. In September, 1857, a circular was issued, announcing that commissions would be given without examination on the condition of the applicant raising a certain number of recruits. In March, however, of the following year, this temporary measure was abolished, the pressure for troops being no longer such as to render its continuance necessary. Since that period no candidates, with the exception of graduates of the universities, have obtained commissions without passing the regular examination.

Before 1862, candidates were eligible for commissions without purchase, on passing the examination for direct appointments. Since that year, however, all free commissions have been reserved for cadets at Sandhurst, and those who pass the direct examination have only obtained commissions by purchase.

REGULATIONS IN FORCE IN 1869.

I. The examinations of candidates for direct commissions will be held in London at such periods as the exigencies of the service may require, and be conducted under the direction of the Council of Military Education by examiners appointed for the purpose. The number of candidates summoned to attend each examination will be limited to the requirements of the service.

II. The age of candidates examined for direct appointments will be, until further notice, from 17 to 20 years for the infantry, from 17 to 22 years for the cavalry, and from 17 to 26 years for colonial corps.

III. The candidate will be examined by a medical board, to ascertain that he is in every point of view, as regards his physical constitution, fit for military service.

He will be required to produce the following certificates, which must be forwarded to the Council of Military Education, 13 Great George street, S.W., as soon as possible after the receipt of the Military Secretary's order to attend for examination:

(*a.*) A certificate of baptism, or other satisfactory proof of his age.

(*b.*) A certificate from a minister of the church or of the denomination to which he belongs, that he has been duly instructed in the principles of religion.

(*c.*) A certificate of good moral character, signed by a clergyman of the parish to which he belongs, or by the tutor or head of the school or college at which he has received his education, for at least the two preceding years; or such other proof of good moral character as will be satisfactory to the Commander-in-Chief.

(*d.*) A statement of the subjects in which he wishes to be examined.

IV. The following will be the subjects of examination, but no candidate will be allowed to be examined in more than *five* of these subjects.

		Marks.
The classics	Latin,	2,000
	Greek,	1,600
Mathematics, pure and mixed,		3,600
English language,		1,200
Modern languages (not including provincial dialects) each,		1,200
History, ancient and modern, with geography,		1,200
Natural sciences, *i.e.*, mineralogy and geology,		1,200
Experimental sciences, *i.e.*, chemistry, heat, electricity, including magnetism,		1,200
Drawing,		600

V. Of the foregoing subjects, the elementary branches of mathematics and the English language, to the extent stated in the following paragraphs, will be considered obligatory:

1. In mathematics, 1,200 marks will be given to the following obligatory portions, viz., arithmetic, including vulgar and decimal fractions, proportion, extraction of the square root, and simple interest.

Algebra, including fractions, simple equations, and questions producing them: Euclid, the first three books.

Of the 1,200 marks allotted to the foregoing portions of mathematics, 400 will be required for qualification, and of these at least 200 must be obtained in arithmetic.

2. In the English language, the candidate will be required to write correctly and in a good legible hand from dictation, and to compose grammatically. He will be required to obtain at least 200 marks in this subject.

3. Out of the remaining subjects the candidate may select any three.

4. No candidate will be allowed to count the marks gained in any one of the three voluntary subjects, unless amounting to one-sixth of the whole number of marks allotted to that subject; and for qualification, he will be required to obtain on his five subjects a total of 1,500 marks.

5. In the examination in classics, passages will be given for translation from the books usually read at schools; grammatical questions will be set, and English passages also given for translation into the Latin and Greek languages.

VI. The result of each examination will be reported to the Commander-in-Chief, and the names of any candidates who distinguish themselves will be specially brought to his notice.

VII. An unsuccessful candidate will not be debarred from applying to the Commander-in-Chief for permission to attend a future examination. No candidate, however, will be allowed more than three trials.

Should a candidate obtain only between 700 and 1,200 marks, he will not be allowed to present himself for reëxamination for at least six months. If he obtains less than 700 marks, a period of at least twelve months must elapse before he can be allowed to present himself again.

In all cases permission to be reëxamined must depend upon the number of applicants on the list.

In subsequent examinations no credit will be given for the marks gained by a candidate on former occasions.

In the event of a candidate not appearing for examination at the time appointed, such candidate will not be permitted to attend on the next occasion, and he will render himself liable to have his name either erased entirely or placed at the bottom of the list of those noted for examination.

VIII. A student at either of the Universities of Oxford, Cambridge, Dublin, London, St. Andrew's, Glasgow, Aberdeen, Edinburgh, or Queen's University, Ireland, who shall have passed the examination necessary for taking a degree in arts, is qualified for a commission by purchase without being required to pass the foregoing examination, provided he is within the limits of 17 and 23 years of age if for the infantry, 17 and 25 years if for the cavalry, and of 17 and 28 years for colonial corps, and can produce the certificates marked (*a*), (*b*), and (*c*).

Such candidate must furnish a certificate of having graduated, or of having passed the examinations, signed by the Registrar of the University, and showing the date on which the examination took place.

On his application being approved, the candidate will receive an order to be medically examined as to his physical fitness for the service.

The candidate will address his application, accompanied by the necessary certificates, to the Military Secretary, Horse Guards.

III. PUBLIC SCHOOL EDUCATION AS PREPARATORY TO MILITARY EXAMINATIONS.

A.—GENERAL NOTICE.

In connection with the Modern Departments, at some public schools, technical instruction in military subjects is actually at present given. This, for instance, is the case at Cheltenham College, the Modern Department at which appears, in fact, to have been originally instituted with the express object of affording means of special military education, and at the present day is officially called the "Military and Civil Department." At one time, also, even at some schools in which Modern Departments did not exist, classes were formed in which instruction in military subjects was given to boys intended for the army. Both at Eton and at Harrow such classes existed, and fortification and military drawing were taught in them. The object of the formation of these classes appears in both cases to have been to enable boys to go up straight from school to the examinations for admission to the army, without the necessity of having recourse to private tuition. At the time of their institution a knowledge of fortification was required in the examination for direct commissions, and a candidate was therefore unable to present himself for this examination without some special preparation. At the commencement of 1858, however, the direct commission examinations were entirely remodelled; the small amount of fortification previously required was at that time excluded from the subjects of examination, which have ever since been of a non-professional character, and more or less such as enter into the course of ordinary liberal education. With the exclusion of technical subjects from the military examinations, the necessity for any special instruction in such subjects in candidates for admission to the army ceased. The military class at Harrow seems to have died out within a few years of its establishment; it has not been in existence during the last ten years and more. At Eton, though the corresponding class is still maintained, the teaching of technical military subjects in it has been abandoned. Even in the Modern Department at Cheltenham the instruction appears of late years to have become of a less decidedly military character than it originally was; and fortification, which was at one time taught at Wellington College, no longer enters into the course of instruction there. In the Modern Side, which has within the present year been established at Harrow, though partially intended, among other purposes, to assist the education of boys intended for the army, no attempt is made to give special military instruction.

The question of the possibility of affording an adequate military education at civil schools was fully discussed by the Commissioners appointed in 1856 to consider the training of officers for the scientific corps.

> Having arrived at the conclusion that professional military education as hitherto given in this country has been begun at too early an age, we are met by what may be called the extreme opposite view, which would suggest the desirableness of giving up altogether education in military colleges previously to entering the army, or to entering a purely practical class or college for the special corps of Artillery and Engineers. An opinion appears to exist that the ordinary schools of the country are the best means of giving nearly the whole teaching of general and even military science which is desirable for all classes of officers before entering the army. It seems to be thought that not only modern languages and mathematics, but military history and topography are likely to be taught in such schools sufficiently for the highest military purposes, and that even young men intended for the special arms of the service may, on joining a military academy, be absolved, or almost entirely absolved, from any other studies than those included under the expression "*a purely practical course.*"

The Commissioners expressed their unhesitating dissent from this view. After pointing out the difficulties of giving at ordinary schools a complete preparation even in studies of a general preparatory character, such as modern languages and mathematics, and the still greater difficulties of teaching special subjects, like military history and topography, the Report proceeds:

> Agreeing, therefore, as to the fact of a "sound general education being given by public schools," we are unable to draw from it the conclusion that they will "give a specific military education." They may indeed assist our military education, in a manner which the true sense of the term "sound general education" expresses, by encouraging preliminary tastes and studies, such as general history, mathematics, and modern languages, English included, to a greater extent than they do at present. But if there is such a thing as a science of war at all, it stands to reason that it can only be taught fully in cases where young officers have the passion and the capacity to begin it early, by its own teachers, and in its own place. The teachers should be

practical men, as well as men of military science; the place a military college. And the great schools of the country will perform the same service to such an academy for young scientific officers as they do for places which give a specific education for other professions; they will *prepare for it*, but disclaim any attempt to *complete it.*

The Report of the Public Schools Commission does not appear to have made any direct reference to the question of the possibility of giving technical military instruction at civil schools; but the disinclination shown by the Commissioners to recommend even the general institution of "Modern Departments" would lead to the conclusion that they were not disposed to view with favor the introduction of any system of special instruction into the ordinary school course.

The question has been dealt with at considerable length in the evidence taken before the present Commission. In addition to the evidence given by Dr. Barry, Mr. Southwood, Dr. Benson, and Dr. Temple, to which particular reference is made in the Report, opinions on the subject were expressed by several military witnesses. Major-General Sir P. Herbert considers that all which is learnt at Sandhurst—all the knowledge requisite for a line officer—might equally well be acquired at a public school, if proper arrangements were made for teaching it. In his opinion fortification (including the practical construction of field-works), military drawing and surveying, military history and drill, could all be taught by military instructors at public schools without difficulty, and without interference with the subjects of general education. Major-General White considers that military history, modern languages, and drawing might be taught with advantage at public schools to boys intended for the army, although it would be difficult to teach the practical work of field fortification, artillery, and surveying. Colonel Baker appears to be of opinion that at the Universities, certainly, a special preliminary education might be given to candidates for the army, on a system similar to that which it was at one time proposed to introduce at Cambridge, but which does not appear to have ever been actually adopted. At the same time, though this instruction would be of a special character, Colonel Baker does not seem to contemplate its embracing strictly technical military subjects. On the other hand, His Royal Highness the Duke of Cambridge is of opinion that special military classes at public schools would fail; Major-General Sir F.

Abbott thinks it unnecessary to establish such classes; Colonel Hort is decidedly opposed to an attempt to give military instruction at any but a military college, on the ground that it could not be so effectively given at a civil establishment, and would, moreover, interfere with the acquisition of a general education; and Lieut.-General Sir D. Cameron considers that it would be impossible for public schools to give a thorough or perfect knowledge of the practical subjects taught at Sandhurst, such as fortification, artillery, military drawing, and surveying.

In connection with the same subject suggestions have been made by some witnesses that the Government should assign a certain number of free commissions annually, as prizes to be competed for, either at particular public schools, or more generally amongst candidates educated at such schools. The institution of military exhibitions or scholarships at civil schools, and of military degrees at the Universities, has been also suggested. By some witnesses these proposals are advocated with the special view of inducing public schools to adopt a system of military instruction; by others with the more general object of holding out increased encouragement to enter the service to candidates who have had the advantage of a public school education.

Although the question of giving military instruction at public schools was not specially discussed by the Public School Commissioners, their attention was directed to the results of public school education in preparing candidates for the military examinations. Their Report speaks as follows in reference to this subject:

> The number of public-school boys who enter the army is not large. Of 1,976 candidates for direct commissions within three years, 122 only had been at any of these schools. Of these 102 succeeded and 20 failed. It will be observed, on reference to the returns, that this proportion of failures is considerably below the average; the public school men, therefore, were better prepared than the general run of candidates. Of 96 who passed at their first examination, 38 came immediately from school, 58 had had intermediate tuition. Of the 20 who failed, 14 had had such tuition.
>
> The public-school candidates for Sandhurst during the same period were 23 out of 375; the proportion who succeeded being here also above the average. Of 18 who succeeded, 11 came straight from school; of five who failed, only one.
>
> The scheme of examinations for direct commissions, framed to meet the suggestions of the Head Masters of public schools, is simple and easy, and requires nothing that is beyond the reach of any boy of moderate industry and ordinary capacity; and it is clear that no boy, who will give himself a little trouble, needs to forego the wholesome influences of a great school for the sake of being "crammed" in the house of a tutor. The Sandhurst examination is also evidently within the reach of the schools.

The qualifying examination for Woolwich appears, before 1862, to have required an amount of mathematical knowledge difficult of attainment for a boy educated at a public school; but it underwent in that year some changes which have made it easier for candidates who have not received a special training. The obligatory mathematics do not now go beyond plane trigonometry; and a candidate need not obtain in them, to qualify, more than 700 marks out of 3,500; with this minimum, and with a fair proficiency in Latin, Greek, French, and geometrical drawing, he is entitled to enter into the competition. This standard is certainly not so high as to be inaccessible to a boy educated at a good public school, and from a table showing the working of the scheme at the examination of January, 1863, it appears that of the 20 successful competitors, 11 distinguished themselves in classics; the other marks were chiefly gained in mathematics and French. In three years, previous to this change, 35 public-school candidates passed and 49 failed to pass the qualifying examination, the totals being 545 and 689. Of the whole 84, two only went direct from the schools, and these failed.

In another passage the Commissioners say: "The main studies of the public schools being classical, it is obvious that, unless a due amount of weight is given to the classics in the Woolwich examinations, boys from those schools will not stand a fair chance in the competition. On the other hand, as it is of importance that the examinations should comprise other subjects besides classics, it is also obvious that unless the public schools provide a due amount of instruction in those other subjects, the candidates whom they send up must compete at a disadvantage. It is certain that there has hitherto been a want of adjustment between the Woolwich standard and the teaching of the public schools. The fault, we think, lies chiefly, though not wholly, in the deficiencies in the course of education pursued at the latter; and we are convinced that when these deficiencies have been supplied the difficulty which is now complained of will speedily disappear. But it is also to be observed, with respect to the Woolwich examinations themselves, that the scale of marks has lately (as we have already stated) undergone an alteration, which diminishes the amount of mathematical attainment required, and allows greater weight to classical scholarship. It appears probable that the Modern Departments at Cheltenham and Marlborough would not have been what they are had the old Woolwich standard, which is stated to have influenced them so strongly, been the same as the present; and probable, also, that they will hereafter feel the effects of the change which has been made in it.

III. EXAMINATIONS FOR PROMOTIONS.

HISTORICAL NOTICE.

EXAMINATIONS for promotion were for the first time instituted shortly after the introduction of examinations for admission to the army, by the Duke of Wellington when Commander-in-Chief, in the year 1850. A circular memorandum, published on the 14th of May of that year, announced that all officers would in future be subjected to an examination previously to promotion to the respective ranks of lieutenant and captain. The first examination was to be confined to subjects connected with the rudiments of drill, regimental duties, interior economy, and the Mutiny Act and Articles of War. The second examination for the rank of captain was in addition to extend to more general subjects, and to include geography, ancient and modern history, mathematics, and field and permanent fortification; but the examination in these subjects was not intended to affect lieutenants who had entered the service previously to 1849.

The examination for promotion to the rank of lieutenant was to be conducted regimentally by the commanding officer and the two next senior officers of the candidate's regiment. The purely professional portion of the second examination, for the rank of captain, was to be conducted in the same manner; with regard to the mode of testing the candidates' qualifications in the more general subjects required in this examination, it was stated that such orders would be given in each individual case as the Commander-in-Chief might think proper and necessary.

These regulations continued in force up to the time of the institution of the Council of Military Education in 1857, although it appears, both from official statements made by the Secretary at War, and from numerous expressions of opinion in Parliament between the years 1854 and 1857, that, at least so far as regarded the second examination for the rank of captain, little attempt was made, even nominally, to enforce the regulations. Mr. Sidney Herbert proposed, in 1854, in connection with his general scheme of military education, to remodel the examinations and to institute a special machinery for conducting them; and though no actual steps were taken to carry out his proposal, the necessity of making the examinations real and genuine tests of professional knowledge, and of enforcing strict qualifications for promotion, was frequently recognized in the numerous discussions which took place in Parliament on the subject of military education during the course of the Crimean War.

The Council of Military Education, on their appointment in 1857, were directed to consider the question of the professional examination of officers for promotion up to the rank of captain, and in the course of the year submitted a proposal on this subject, in connection with a scheme for providing instruction for officers after entering the service.

New regulations on the subject were issued on the 19th of July, 1858, which, while introducing little change in regard to the examination of cornets and ensigns, rendered a knowledge of mathematics, history, and fortification no longer requisite in the second examination for the rank of captain. Geography, on the other hand, was still retained among the subjects, and, as a condition of promotion to a captaincy, a lieutenant was required "to be able to state the general divisions of the world, the name of the capital of each nation in Europe, and the principal rivers, seaports, and military posts in Great Britain, Ireland, and Her Majesty's Dominions in every part of the world." The examinations of cornets and ensigns still continued to be conducted regimentally; that of lieutenants, so far as related to matters of regimental economy, detail, or discipline, was to be made by boards of officers appointed by the commanding officer at the station, consisting, when possible, of three senior officers not of the same corps as the candidate.

In November, 1858, revised regulations were issued, which, in accordance with the recommendations of the Council of Military Education, made considerable changes in the examinations, and placed them on their present basis. The subjects of regimental and ordinary duties on which candidates were to be examined were more minutely detailed than heretofore; the examinations were made entirely professional, geography being excluded from the second examination, and at the same time it was announced that lieutenants would be required to show a sufficient knowledge of reconnaissance and of field fortification. But the most important change made at this time was in regard to the mode of conducting the examinations, which were no longer to be carried on regimentally, but by a board appointed by the commanding officer of the district, consisting (if possible) of three field officers,—with the additional provision that in no case in which it could possibly be avoided, an officer of the same regiment as the candidate was to be a member of the board. Cornets and ensigns were to be required to pass the examination before completing eight months' service; and, in order to give additional stringency to the regulations, it was announced that the Commander-in-Chief would "not hesitate to promote (either regimentally or from other corps) officers who may have passed the required examination, in place of the idle and incompetent."

REGULATIONS IN FORCE IN 1869.

Infantry and Cavalry.

159. Before officers are recommended for promotion to the rank of lieutenant, the commanding officer is to apply to the senior officer of the district or station for a board to examine and report upon their qualifications as under:

(*a*.) They must have a thorough knowledge, and must give an account, of the duties they have to perform as regimental orderly officers, as officers commanding guards, or as subaltern officers of guards under officers of superior rank.

(b.) They must have a thorough knowledge of, and be able to put a company through the various exercises and evolutions prescribed in the first two parts of the "Field Exercises of the Infantry;" and they must be acquainted with the rifle drill and practice, and the theoretical principles of musketry, as defined in the authorized book of instruction.
(c.) They must know exactly the place of all the company officers in every situation of the battalion, and be able to command a company in battalion exercise.
(d.) They must be acquainted with such parts of the Queen's Regulations and Orders for the Army as relate to the duties and conduct of a subaltern officer, and with the Mutiny Act and Articles of War, so far as is necessary for the performance of their duties as members of a court-martial.
(e.) They must be acquainted with the regulations of the army in regard to the pay and messing of the troops, the supply of clothing and necessaries, and all details regarding the weight of, and mode of carrying, the various articles of the soldier's kit, arms, accoutrements, and ammunition.

160. In addition to such portions of the foregoing as may apply to the cavalry service, it is necessary in the case of cornets recommended for promotion to the rank of lieutenant,—

(a.) That they shall have learnt their foot drill and sword exercise, and have been instructed in the single and double ride.
(b.) That they shall be able to put a troop through the carbine, lance, and sword exercise, and to exercise both a squad and troop in the drill and evolutions prescribed in the Cavalry Exercise Book.
(c.) That they shall be able to command a troop in squadron exercise.
(d.) That they shall have made themselves masters of the detail of saddlery, the mode of fitting the saddle, bridle, etc., and of the whole equipment of the cavalry soldier and his horse.

161. Lieutenants in the Cavalry and Infantry will, in addition to the foregoing, before they are recommended for promotion to the rank of captain, be required to show that they are further duly qualified as follows:

(a.) They must have a thorough knowledge of the provisions of the Mutiny Act and Articles of War, and of the forms and proceedings of courts-martial, and must give evidence of having studied some of the standard works on military law.
(b.) They must understand perfectly the evolutions of a regiment of cavalry or a battalion of infantry, as laid down in the regulations for those services respectively.
(c.) They must be acquainted with the light infantry drill, duties of outposts, patrols, escorts, advanced and rear guards.
(d.) They must perfectly understand the interior economy of a troop or company, and the established system of keeping their accounts.
(e.) They must be thoroughly acquainted with the Queen's and War Office Regulations applicable to their own branch of the service.
(f.) They must be competent to take charge of a troop, company, or detachment, in every position in which it may be placed.
(g.) And they will be required to show that they have a sufficient knowledge of field fortification and reconnaissance.

162. The board of examination is to consist, if possible, of three field officers; but on no occasion, when it can be avoided, is any officer of the same regiment as the candidate to be a member. In all cases the board will ascertain by practical examination, as well as by verbal and written answers to questions, whether the officer is instructed in the subjects specified in the preceding paragraphs. The questions are to be written on half margin, and the replies written opposite to them. The board will mark in red ink its correction of any mistakes in the answers, and will certify in each case that "the candidate has not received any assistance from books or other sources." The report of the board to be on a separate sheet, and when officers of different regiments are examined by the same board, the report in connection with each regiment is to be made separately.

163. The general officer commanding will forward the report of the board, and the written questions and replies, to the adjutant-general, accompanied by his own observations thereon, regarding the nature of the examination, the correctness of the answers, and the eligibility of the officer examined.

164. Every cornet or ensign is to be examined on the different points herein specified, before he has completed one year's service; and should he fail to qualify himself for promotion within that period, his commanding officer must report, through the general officer commanding, for the information of the Commander-in-Chief, whether it is owing to a want of diligence and attention on the part of the officer, or to sickness, or other circumstances over which he could have had no control.

165. No officer will be recommended for promotion to the rank either of lieutenant or captain unless his examination papers and certificate of qualification have been received by the Military Secretary; but the Commander-in-Chief will, in all cases, select the senior officer who may have qualified for promotion to the higher grade.

Artillery.

166. The examination of lieutenants of artillery for the rank of captain will include all the subjects required from officers of the line of corresponding rank, except that a general knowledge only of the evolutions of cavalry and infantry will suffice. In addition to the foregoing, lieutenants of artillery are to be examined as to their acquaintance with the more special duties of their arm of the service. The following will serve as a guide:

(*a.*) Field-gun drill. Exercise of heavy guns on ground and traversing platforms, mortar drill, rocket drill, Armstrong-gun drill, practice with hot shot and molten iron shells, gun and transporting carriage drill.

(*b.*) General duties of the men, and principles involved in mounting and dismounting ordnance generally, in placing guns on towers, in embarking and disembarking ordnance, and in moving ordnance up steep inclines; also the tackle, etc., required in the above operations.

(*c.*) Different pieces of ordnance in use throughout the service at the time of examination, their weight and calibre, and special purpose.

(*d.*) Ammunition employed with ordnance generally; ammunition employed with Armstrong guns; general construction of a Congreve rocket, and the principle of its motion; manufacture and action of fuzes and tubes; the advantages of the rifle action, and the principle upon which it depends; essential points with regard to rifling ordnance; general principles of breaching; position and employment of artillery in the field; considerations which regulate the rapidity of artillery fire; principles connected with the construction of artillery carriages; general knowledge of laboratory duties.

(*e.*) Embarking and disembarking horses; management of horses on board ship.

(*f.*) To be able to define technical artillery terms, etc., in such a way as to make them understood by the non-commissioned officers and men under their command, such as,—1, point blank; 2, point blank range; 3, dispart; 4, chambers; 5, preponderance; 6, different kinds of artillery fire; 7. how elevation gives an increase of range; 8. windage; 9 deviation, etc. etc.

(*g.*) Subalterns who have been one year or more in the horse brigade, or in a field battery, will be required, in addition to the foregoing subjects, to be thoroughly acquainted with stable duties, and horse artillery or field battery movements and details. All must have a general knowledge of these subjects.

167. Every officer, on becoming the thirtieth on the list of lieutenants, must be prepared to undergo the required examination. Any officer, after four years' service, may apply for such examination at an earlier period.

168. Instructions will, from time to time, be issued to the general or other officer commanding districts or stations, to assemble a board, to consist of three officers, viz., a field officer (of the artillery, if possible), an officer of the staff, and a captain of artillery, or an officer of that corps who may already have passed the examination. Either the gunnery instructor or the fire-master should, when practicable, be selected for this duty. If it be impossible to obtain a staff officer, a captain of the line should be substituted; if a second officer of artillery cannot be had, an officer of engineers should be substituted; but either the president or one member must be of the artillery.

169. That portion of the examination which can be best replied to in writing will be conducted by means of questions prepared by the deputy adjutant-general of artillery, and forwarded to the general officer commanding the district. The *vivâ voce* and practical examination will be conducted by the board of officers, who will satisfy themselves that the officer under examination not only possesses the requisite knowledge himself, but that he is able to impart that knowledge in a clear and satisfactory manner.

170. The board will then forward, through the general officer, its report, together with the written answers, to the adjutant-general of the forces; and, in returning to him the written answers, the president of the board will certify that they are the *bonâ fide* performances of the candidates, without assistance. The written papers will then be examined by the deputy adjutant-general of artillery, and the result, together with the opinion of the board, reported to the Commander-in-Chief.

ROYAL WARRANT OF OCTOBER 30, 1871.

In pursuance of the abolition of the whole system of purchase, sale, or exchange for money, of commissions in the army, by Royal Warrant, dated July 20, 1871, certain changes in respect to first appointments, regimental promotion, and exchanges, became necessary, and were provided for in the Royal Warrant issued October 30, 1871, which became operative on the first day of November following. By these regulations, the first step in official rank is that of Sub-Lieutenant; the rank of Cornet and Ensign being no longer recognized. As a general rule, the final appointments will be given only to successful candidates at a competitive examination. These will be probationary, and revocable in case the unfitness of the incumbents shall be demonstrated by practical trial in their work From the Memorandum of the Secretary of War (Edward Cardwell), which accompanies the Warrant, we cite the following as defining the present system of original appointments and promotion

Commissions as Lieutenants will be given to all Cornets and Ensigns appointed before the 26th of August, 1871, and to Cornets and Ensigns appointed since that date from the A List at Sandhurst, their commissions to date from the first of November.

Commissions as Sub-Lieutenants will be given to:

(*a.*) All other Cornets and Ensigns appointed after the 26th of August, 1871, the rank of Cornet and Ensign being abolished.

(*b.*) Candidates who have passed the examination for Direct Commissions, in their turn as vacancies occur.

(*c.*) Candidates for commissions in the Household Cavalry and Foot Guards who are nominated to fill the vacancies which occur in those regiments, before the date of the first competitive examination for Sub-Lieutenancies, and who pass a qualifying examination.

(*d.*) Candidates from the Universities now on the Commander-in-Chief's list.

Sub-Lieutenants will be attached for a year to regiments at home. They will then be required to go through a course of instruction, and on passing a practical professional examination, be commissioned to regiments as Lieutenants. They will be under strict discipline, and will be liable to be removed for unfitness, either moral or physical, and for misconduct. Those unsuited to the Cavalry may be transferred to the Infantry.

In dating their commissions they will be allowed a portion, not exceeding one year, of their services as Sub-Lieutenants; the time allowed being determined by the class of certificate they receive after their year's regimental training, their conduct while under instruction, and their position at the final examination. Their service for retirement will reckon from the date of their commissions as Lieutenants.

Candidates who have passed the examination for direct commissions, and have also passed satisfactorily through a year's course of study at the Royal Military College before being appointed to be Sub-Lieutenants, and Sandhurst Cadets from the B List will be commissioned to regiments as Lieutenants on serving satisfactorily for twelve months with a regiment as Sub-Lieutenants.

There are now a large number of supernumerary officers, and also a large number of candidates who have passed for commissions.

The absorption of supernumerary officers will probably be completed, and the candidates who have passed for commissions have received their appointments in about two years from the present time, and personal appointments in the Army will then only be given as follows:

(*a.*) To successful candidates at a competitive examination.

(*b.*) To non-commissioned officers recommended for promotion by the Field-Marshal Commanding-in-Chief.

(*c.*) To candidates from the Universities.

(*d.*) To Queen's Cadets, Indian Cadets, and Pages of Honor.

(*e.*) To Lieutenants of Militia.

The competitive examination will be carried out by the Civil Service Commissioners; the standard of qualification being that recommended by the Royal Commission on Military Education. Ample notice will be given of the first examination, and there will be no advantage in any applications being made for admission to be examined before the publication of such notice.

Non-commissioned officers, on being selected for promotion, will pass an examination in certain professional subjects; and then, after twelve months' satisfactory service as Sub-Lieutenants, will receive commissions as Lieutenants

A certain number of Sub-Lieutenancies a year will be allotted to candidates who have passed the University examination specified in the Regulations. If they also pass the examination for the degree of B.A., they will be allowed two years' extension of the limit of age. University candidates will be required to give at least six months' notice of their desire to be admitted into the Army. If in any year there should be more candidates than appointments, the requisite number will be chosen by competition between the candidates; after their appointment they will go through the same course as other Sub-Lieutenants.

There will be no vacancies for two years for any candidates from the Universities whose names are not now on the Commander-in-Chief's list.

Queen's and Indian Cadets and Queen's Pages will be required to pass a qualifying examination, which for the present will be the same as that recommended by the Royal Commission on Military Education. The nominations will remain as heretofore. When appointed, Cadets and Pages will go through the same course as other Sub-Lieutenants.

First appointments as Subalterns in the Militia will be made on the recommendation of the Lieutenants of counties. Candidates, before receiving their Commissions as Lieutenants in the Militia, will be required to pass a qualifying examination in general subjects equal to the standard fixed as necessary for a candidate for a Sub-Lieutenancy. They will next be required to be attached to a regiment of the Line for three months, or such time as may be necessary to teach them their drill. After serving with their Militia regiments for two annual trainings, they will be eligible for the appointment of Lieutenants in the Army. In order to obtain such an appointment they must be recommended by the commanding officer of their Militia regiment, his recommendation being confirmed by the general officer commanding the district, and they will be required to pass an examination in professional subjects of the same kind as that which will be required of a Sub-Lieutenant before he receives his commission as Lieutenant.

The limits of age, except for non-commissioned officers, will be fixed at from seventeen to twenty for Sub-Lieutenants, the limit being raised to twenty-two in the case of candidates who have passed their examination for the degree of B.A. at the Universities, and from nineteen to twenty-two for Lieutenants from the Militia.

In addition to the examinations hitherto required from regimental officers, those who are promoted to the rank of Captain after the 1st of November will, before being promoted to the rank of Major, be required to pass a professional examination.

The General Order promulgating the Royal Warrant and the Memorandum of Secretary Caldwell contains the following paragraph:

His Royal Highness the Field-Marshal Commanding-in-Chief, in promulgating these regulations to the Army, would desire to impress upon each individual officer, and especially upon those of junior standing who have still a name to make in the service, that they must more than ever rely upon their own exertions, upon their professional knowledge and ability, upon their general character and conduct as officers, and the opinion with which they impress their military superiors, for advancement in the service.

Examiners Employed by Council of Military Education.

Mathematics.—Rev. Canon Heaviside, Norwich; Rev. W. N. Griffin, late Fellow and Tutor, St. John's, Cambridge.

Classics.—Rev. Osborne Gordon, D.D., late of Christ Church College, Oxford; Prof. Rawlinson, Camden Professor of Ancient History, Oxford.

English.—G. W. Dasent, D.C.L.; W. Stebbing, M.A., Fellow of Worcester College, Oxford.

French.—M. Esquiros; M. Savoye.

German.—Prof. Max Müller, Prof. of European Languages, Oxford; C. Schöll, Ph.D.

Hindustani.—Prof. J. Dowson; Rev. W. D. Mallagan, M.A.

Experimental Sciences.—Prof. Liveing, M.A., Prof. of Chemistry, Cambridge; Prof. Abel, Chemist to War Office.

Natural Sciences.—Prof. Morris, F.G.S.; H. W. Bristow, F.R.S.

Drawing.—Lt. Col. H. Scott, R.E.; Rev. W. Kingsley, late Fellow and Tutor, Cambridge.

Italian.—C. De Tivoli.

Spanish.—Señor Vives.

Portuguese.—Le Chevalier da Costa Ricci.

Dutch.—Rev. Dr. Gehle.

Modern Greek.—Rev. N. Morphinos.

Danish.—Rev. J. Plenge.

Military History.—Major G. P. Colley.

Fortification and Practical Gunnery.—Lt.-Col. Hutchinson, R.E.; Major Milman, R.A.

Military Administration.—Major M. Petrie.

Persian.—Col. Ouseley.

Military Legislation.—Col. J. H. Laye, D.J.A.

Artillery.—Major C. F. Yonng.

In the evidence before the Military Education Committee, of July 13, 1869, the Secretary of the Civil Service Commission expressed the opinion that the entrance examination, both to Sandhurst and Woolwich, on subjects purely civil, might be conducted by the latter; and that the same and other subjects, in their scientific value, both in all qualifying and competitive examinations for direct commission and promotion, could be conducted by the same examiners, thereby securing economy, more uniformity in the methods and tests, and more satisfactory results. The staff of examiners should be composed of changing as well as of permanent members, and when the service is professional, an expert should be called in. The entire work of the Civil Service Commission, including the India Service, is done by one Commissioner, the Secretary, and his permanent examiners, with occasional assistants.

Expenses of Council of Military Education.

Year.	£	s.	d.
1858–59,	6,325	3	1
1859–60,	6,958	7	7
1860–61,	7,757	12	1
1861–62,	7,789	14	3
1862–63,	7,681	17	6
1863–64,	7,529	11	10
1864–65,	7,976	17	5
1865–66,	7,884	2	8
1866–67,	7,353	16	5

ROYAL MILITARY COLLEGE AT SANDHURST.

I. HISTORICAL NOTICE.

The Royal Military College at Sandhurst was instituted in 1799, on the persistent representations of its necessity and advantages, by General Le Marchant, an eminent and distinguished officer, who met his death in actual service on the plains of Salamanca, in 1812. The report of the Parliamentary Commissioners of 1855 and 1870 give the following particulars of the history and present condition:

It commenced as a place of instruction for officers, in 1799. In 1801, the Junior Department was organized. The united departments took the name of the Royal Military College, and his Majesty George the Third was pleased by Royal Warrant to appoint a Supreme Board of Commissioners for the purpose of managing all the affairs of the College.

An establishment and a course of study were recommended by this Board, and adopted in a Royal Warrant, passed in the same year, 1801. From this date warrants were issued from time to time until the warrant of 1808, which cancels all former warrants, and still regulates the College.

By this warrant, a Board of Commissioners was appointed, consisting of the Commander-in-Chief, the Secretary at War, the Master-General of the Ordnance, the Quartermaster-General, the Adjutant-General, the Governor, and the Deputy-Governor of the College,—all for the time being. Certain other officers were added to these *ex officio* members. In the Board so constituted were vested the control, direction, and management of all the affairs of the College. The College was to be under the immediate command of the Governor and Deputy-Governor, to be divided into a senior and junior department, each to have its own course of study, under its own staff.

A collegiate board was created to take cognizance of all matters relating to the interior economy of both departments. This board consisted of the Governor, the Deputy-Governor, and three other resident military authorities.

The Royal Warrant of the 27th May, 1808, for regulating all matters relative to the Royal Military College, states the objects of the two departments of the College, as follows:

The Senior Department of the Royal Military College is established for the purpose of instructing officers in the scientific parts of their profession, with a view of enabling them the better to discharge their duty when acting in command of regiments (the situation in which they can best recommend themselves to Us, and be entitled to hope for advancement in the higher stations of Our service), and, at the same time, of qualifying them for being employed in the Quartermaster-General's and Adjutant-General's Departments.

> The Junior Department of the Royal Military College is appropriated to the instruction of those who, from early life, are intended for the military profession, and who, by this means, may be grounded in science previously to their obtaining commissions in Our army.
>
> This department of the College is also intended to afford a provision for the sons of meritorious officers, who have fallen or been disabled in the service of their country, and the means of education to the sons of those officers who belong to Our regular service.

The first of the departments organized was thus the Senior Department, which was established at High Wycombe, in 1799, although it would seem that classes for the military instruction of officers had been in existence previous to that year. The origin of the Senior Department is thus described in the evidence given by Sir Howard Douglas before the Select Committee on Sandhurst:

> General Jarry, who was the first Commandant of the Senior Department, was a Frenchman, highly educated in France, who entered the service of Prussia a short time before the commencement of the Seven Years' War, and was on the personal staff of Frederic the Second through the whole of that war. He returned to France, and became afterward one of the generals of the French army; and, in the year 1795, defected from the French army, and came to London, where he soon became very generally known as a man of eminent talent, perfectly master of the science and the practice of his profession, and, from his having served so long about the person and on the staff of Frederic the Second, full of the most interesting anecdotes and instructive details connected with that war. General Le Marchant, having formed an acquaintance with General Jarry, in London, it occurred to him that, if General Jarry could be engaged to give lectures to a certain number of young officers who might be disposed to go and reside where the general might attend, it would be very advantageous to the service. General Jarry was so engaged. A house was taken at High Wycombe; a considerable number of the rising young officers of the day became his students,—Sir George Murray, Sir Henry Bunbury, Sir Richard Bourke, General Richardson, and a great many others. General Jarry soon found that the rudiments of military science in the British army were not sufficiently known to enable all the students to profit by his instruction, and recommended that mathematical, and fortification, and other classes, should be established; and, accordingly, Mr. Dalby, a mathematical professor, M. St. Denis, professor of fortification, and M. Polchet, of the Polytechnic School, were engaged; and in this way the Senior Department was established.

General Jarry became commandant of the establishment on its institution, and, in 1804, Sir Howard Douglas himself was appointed to assist General Jarry, as superintendent.

The formation of the Junior Department had probably been determined upon from the time when the Senior Department was established. It was actually organized in 1801, when it was established at Great Marlow, and, in the year 1803, consisted of 200 cadets; the Senior Department being, at the same time, composed of 30 students. Each department had at this time its own commandant, superintendent, and special staff of instructors (7 for the Senior, and 19 for the Junior Department); while there was, in addition, a general staff, consisting of a governor, lieutenant-governor, and other officials, for the two departments, which, although in separate localities, together constituted the Royal Military College.

The Royal Warrant of 27th May, 1808, fixed the establishment on a still larger scale, as follows:

1 Governor, 1 Lieutenant-Governor, 1 Inspector-General of Instruction.

Senior Department.—1 Commandant, 1 Adjutant, 30 Students.

Junior Department.—1 Commandant, 1 Major, 4 Captains of Companies, 412 Gentlemen Cadets.

Staff.—1 Chaplain and Librarian and Superintendent of Religious and Classical Instruction, 1 Agent, 1 Secretary to the Board of Commissioners, 1 Paymaster, 1 Quartermaster, 1 Surgeon, 1 Assistant Surgeon.

The number of professors is not fixed by the warrant, but, in 1810, 5 were employed at the Senior, and 32 at the Junior Department. In 1815, the number of professors was 6 at the former, and 36 at the latter.

The establishment, with slight modifications, continued as above throughout the period of the war which terminated in 1815; but shortly after the conclusion of peace reductions began, in consequence of the recommendations made in the report of the Finance Committee of 1817, and at the same time the course of instruction in the Junior Department was made of a much less military character than it had originally been.

The Senior Department was, as has been stated, originally established at High Wycombe, and the Junior Department, as there was not sufficient accommodation for it at the same place, was, on its institution, placed at Great Marlow. It is probable, however, that it was intended from the first that the Military College should be at Sandhurst, and it appears that, as early as 1801, the greater part of the estate at Sandhurst had been purchased. Owing, however, to doubts having subsequently arisen as to the eligibility of Sandhurst as a site for the college, the works there do not appear to have been commenced until 1809; and it was eventually determined that the Junior Department alone should be placed there, the Senior Department being accommodated at Farnham. In 1812, the Senior Department went to the quarters prepared for them at the latter place, and about the same time the Junior Department was removed to Sandhurst. In 1820, in consequence of the space left vacant by the reductions which had then been made in the Junior Department, the Senior Department was transferred to Sandhurst; its separate military staff was at the same time abolished, the number of students at it was reduced to 15, and the number of instructors to 2. It continued in this state down to the time of its conversion into the Staff College, which took place in January, 1858. The Junior Department was also, by successive reductions, brought, in 1832, to the state in which it stood in 1855, at the time of the appointment of the Select Committee of the House of Commons, the number of cadets having been reduced to 180, divided into two companies. In the year 1832, also, the Parliamentary votes in aid of the College, which, in 1815, had amounted, for the Junior Department alone, to £34,000, entirely ceased, and, from this time up to 1855, the College was not only self-supporting, but, in some years, actually paid money into the Exchequer.

In the year 1855, in consequence of attention having frequently been drawn in Parliament to the state of Sandhurst, a Select Committee of the House of Commons was appointed to inquire into the condition of the Royal Military College. The establishment of the College was, at that time, as follows:

1 Governor, 1 Lieutenant-Governor.

Senior Department.—2 Instructors, 15 Students.

Junior Department.—1 Major and Superintendent of Studies, 2 Captains of Companies, 180 Gentlemen Cadets, 1 Chaplain, 1 Secretary to the Board of Commissioners, 1 Paymaster and Quartermaster, 1 Surgeon, 1 Assistant Surgeon, 1 Riding Master, 16 Instructors.

This continued without material alteration to be the establishment until 1858.

The instructors undertook the following branches:

(*A.*) *Senior Department.*—1. Mathematics and Fortification. 1. Military Surveying.

(*B.*) *Junior Department.*—3. Mathematics. 2. Fortification. 3. Military Drawing and Surveying. 1. Landscape Drawing. 2. History, Geography, and Latin. 3. French, 2. German. [The seniors in these branches also gave instruction to the Senior Department.]

The Chaplain also gave instruction in History.

The title of Major and Superintendent of Studies dates from the year 1842. For some years previously, the offices of Adjutant, Paymaster, and Superintendent of Studies, had been combined in the person of one officer, Major Proctor. On his retirement, in 1842, Lieut.-Colonel Prosser was appointed Major and Superintendent of Studies—an office which has been retained to the present day—and the appointment of Adjutant was abolished.

At the time of the inquiry by the Select Committee of the House of Commons (1855), the Junior Department of the College was a school for boys. The limits of age for admission were from 13 to 15. Candidates were admitted by application to the Governor, on passing a qualifying examination, before the professors of the college, in elementary subjects of ordinary education. The maximum term of residence was four years, the average period being three years. The course of study was intended to complete the general education of the youth, in addition to giving him military instruction, and included history, geography, and Latin, as well as more professional subjects.

The system of instruction which prevailed at the College at that time is described as follows by Mr. Twisden, now professor of mathematics at the Staff College:

> The instruction and examinations in the Junior Department were, in the year 1855, conducted on the following system: There was a division of the department into upper and lower school; but, practically, the division was of little importance. The most important division was made by the line which, in each separate branch of instruction, divided the cadets in the Board class from those not in the Board class.
>
> A cadet was in a Board class who was actually preparing for the public examination, which took place before the "*Board* of Commissioners for Regulating the Affairs of the Institution." The Board was, however, in most cases, represented by not more than one or two of its members. In any given subject, a cadet had to pass through certain grades of elementary instruction before he could be placed in a Board class. Moreover, he was only moved from one grade of elementary instruction to another on passing examinations, which were held monthly by the senior instructors in the several subjects. The junior instructors reported those of their cadets whom they regarded as ready for promotion, and the senior ascertained that the proper degree of proficiency was obtained. Thus, in mathematics, a cadet had to pass examinations in Fractions and Decimals, mixed numbers, Rule of Three, Interest, and Square Root, Algebra up to the end of Quadratic Equations, and logarithms,—four successive examinations in all. He had then to spend a half year in the study of Euclid's Geometry before admission to the Board class. It will be understood that all the cadets were not examined monthly, but only such as were reported as fit for examination; so that any one cadet might pass a long time without examination, or he might be examined for several successive grades in one subject, and not undergo any examination in another. There was, in fact,

scarcely any mutual dependence of one branch of instruction upon another. I believe the only exceptions to this were, that a cadet was required to have passed his examination in algebra before getting into the lowest fortification class, and to have gained a certain proficiency in military drawing before getting into the surveying class.

The Board class in each branch was taught by the senior instructor in that branch, except that the Board class of history was taught by the chaplain. When a cadet had passed an examination in any subject before the Board, he was said to have taken up a step. The steps which it was possible for him to take up were as follows, and I have arranged them in three groups, for conveniences of reference:

A.—(1.) Euclid's Geometry. (2.) Fortification. (3.) Surveying.
B.—(4.) Trigonometry and Mensuration. (5.) Attack and Defence of Fortification. (6.) History and Geography. (7.) Latin. (8.) French. (9.) German.
C.—(10.) Elements of Mechanics. (11.) Elements of Coördinate Geometry and Differential Calculus.

To gain a commission without purchase, it was necessary to take up the three steps in the group A, and any three in the group B,—six in all. But if a cadet took up more than six steps, the fact was mentioned in the certificate given him on leaving the College. For gaining this honorary distinction, the steps marked in group C were allowed to count; but I believe not otherwise. I may mention that, in many cases, more than six steps were taken up.

The process of examination before the Board was this: About seven weeks before the end of the half year, the senior instructor in each branch reported the cadets in his branch whom he thought capable of taking a step. Thus the senior instructor or professor of mathematics reported those cadets in the Euclid Board class whom he judged capable of taking up the step. Shortly after, these cadets were examined before the Lieutenant-Governor; about a week before the end of the half year, they were examined again, on this occasion, before the Governor; lastly, they were examined publicly before the *Board*. Failure was possible in either of these examinations, and not unfrequently occurred at the preliminary examinations, and sometimes, though rarely, at the Board examination. The effect of failure was, that the cadet could not pass his step without going through his examinations at the end of the next half year.

The examinations were conducted entirely *vivâ voce*. The Governor's and Lieutenant-Governor's examinations were searching; they sometimes lasted from six to seven hours; but, of course, the cadets, severally, were under examination only during a part of that time. The Board examination, though less searching, was a real examination. A cadet under examination had not the least notion of what was going to be asked, except that it was fairly within the subject of the step.

The system thus briefly described was invented by Major Proctor, who was at first *Adjutant*, and, afterward, Superintendent of Studies. It was in operation, at all events, as early as the year 1818. It was open to several objections; but it possessed this capital advantage, that it was calculated to bring, and, in point of fact, brought a large majority of the cadets up to a certain moderately high standard of proficiency. The instructors were under no temptation to take great pains with a few clever boys, and to neglect the rest; they were nearly sure to assist every cadet showing the least inclination to work, and to assist those most who were in need of assistance.

On the other hand, the system failed to supply a cadet of superior ability with a motive to attain a high degree of proficiency in any given subject. The utmost attained was, that cadets of more than ordinary ability were encouraged to attain the standard of proficiency in more than the necessary six subjects. The system was also open to the serious objection that, under it, the cleverest cadets got through their course quickly. This was bad for them, for it had the effect of bringing their school-education to an early end; and it was bad for the institution, because the eldest cadets were not the most intelligent.

I must be allowed to add, that my experience of the examinations by *vivâ voce* has given me a very lively sense of the value of that kind of examination; and, though it is not adapted for all subjects, and, where many have to be examined, takes too much time, yet it might be used under many circumstances with very great advantage, and I regard its total disuse since the year 1858 as a very serious error.

I have mentioned above the fact of the Junior Department being divided into an under and upper school. I may add that there were six classes,—three in each school, and two removes in each class. I believe that this was the remains of an earlier organization, which, without being formally abrogated, was, by degrees, nearly obliterated by the introduction of the step system. The only thing that kept up the distinction between upper and lower school was, that a cadet, to be in a Board class, had to pass into upper school. The three classes in the upper school did not have a nominal existence in 1851.

With respect to the Senior Department, a somewhat different system was followed. The course was one of two years; but, in the case of officers who had been cadets, the course was one of a year and a half. There was an examination held at the end of each half year on the subject of the half year's course. The method of examination resembled that in use in the Junior Department. The subjects comprised in the course are mentioned in a paper printed on page 215 of the evidence taken before the Select Committee of the House of Commons on Sandhurst (1855).

In certain respects, officers might do more than the prescribed course, and obtain honorary mention, *e. g.*, they might do extra plans; they might take up a certain amount of analytical mathematics, with a portion of Poisson's "Traité de Mécanique," and of Laplace's "Mécanique Céleste." I have by me the synopsis of the ordinary course of mathematics in use before the year 1858; but, as the heads of it are given in the paper above referred to, it is unnecessary to give any details about it.

The Report of the Select Committee of 1855 contained various suggestions for the improvement of both departments of the College, but did not propose to alter the character of the Junior Department as a place of juvenile education. The only practical results of the report were, the establishment of Queen's cadetships, and the revision of the rates of payment required from all classes of cadets. The institution of Queen's cadetships was determined upon by the Government in 1856, but the other alteration was not immediately carried out, and no modification of importance in the constitution of the College ensued from the recommendations of the Committee. It was not until the general reorganization of the system of military education which took place in 1857 that any important change was made in regard to the Military College.

It appears to have been decided at the end of 1856 by Lord Panmure, then Secretary of State for War, that an amalgamation of the Junior Department of Sandhurst with the lower classes of Woolwich should be effected. The Council of Military Education, on their appointment, in April, 1857, were directed to suggest the mode in which this amalgamation could be carried out, taking, as their starting point, the principle that Sandhurst was to be converted from a school for boys into a college for young men, with the age of admission ranging from 16 to 18.

The proposed plan having been approved, an announcement was made, in December, 1857, that the education of candidates for all arms of the service, who did not obtain commissions by direct appointments, would be given at Sandhurst; that entrance would be obtained by competitive examination, open to candidates between the ages of 16 and 18; that the period of study would be two years, and would be terminated by a competitive examination, the most successful candidates in which would be permitted to select the Engineers or Artillery, according to the number of vacancies in those corps, or would receive commissions without purchase in the Cavalry, Guards, or Line. Those who selected the Ordnance corps were to be removed to the school of application at Woolwich.

Almost simultaneously with this notification, appeared a General Order, announcing the conversion of the Senior Department into the Staff College, which was then placed under a separate commandant and staff of instructors,—the Junior Department being henceforward called the Cadet College.

An examination for admission to Sandhurst, under the regulations described above, took place in January, 1858, when 24 candidates were admitted to the College. On the 26th of April, however, a resolution was passed by the House of Commons, on the motion of Mr. Monsell, in consequence of which the plan for the amalgamation of Woolwich and Sandhurst was necessarily abandoned; and, in May, 1858, revised regulations were issued, which again placed Sandhurst on the footing of an entirely distinct establishment from Woolwich. In these regulations, however, a new provision was introduced, by which a cadet at the Military College was, if otherwise eligible, permitted to compete at the examination for admission to Woolwich, without his position at Sandhurst being affected by failure in this examination. This regulation has been retained.

The large increase in the numbers of the College which was contemplated by the amalgamation scheme was not carried out, the establishment still remaining at 180 cadets, divided into two companies. At the same time, the other alterations recommended by the Council in the constitution and course of study of the College were brought into effect. Since this period the system of juvenile military instruction, which had been already abandoned at Woolwich, has been discontinued at Sandhurst. The establishment was converted from a school for boys into a college for young men, the minimum age for admission being placed at 16; while the course of instruction—the length of which was fixed at two years—was made almost entirely professional. The principle of competition was adopted as the condition of admission, although not to so full an extent as at Woolwich, the candidate for Sandhurst being required to apply to the Commander-in-Chief, in order to have his name entered on the list of competitors. The entrance examinations for admission to the College, and the final examinations for commissions, were placed under the control of the Council of Military Education; and the whole method of instruction was revised, the old system of "steps" being abandoned.

For many years, up to this time, the College had been almost entirely self-supporting. The orphan-class of cadets, established by the Royal Warrant of 1808, who had received a gratuitous education, had, after successive reductions, been finally abolished in 1822; and, though the sons of officers were still educated at reduced rates, the system had been gradually introduced of affording them this advantage without expense to the public, by increasing the rates paid by the sons of private gentlemen. This system, which had been animadverted on by the Select Committee of the House of Commons, in 1855, was altered on the reorganization of the College, in 1858; the rates of payment from all classes were reduced, and the principle was, at least partially, adopted, of defraying, by a Parliamentary vote, the difference between the actual cost of the education of a cadet and the lower rates charged for the sons of officers. The first public announcement of the institution of Queen's cadetships, the holders of which were to receive a gratuitous education, was also made in 1858. Since this period, a large part of the expense of the College has been borne by the public.

Some addition to the instructional staff was made in the year 1858, in consequence of the general changes introduced at that time in the system and subjects of instruction; and, in the same year, the office of Adjutant—which had been abolished in the year 1842—was revived, in consequence of the strong representations of the Governor, Lt.-Gen. Sir H. D. Jones.

The next important change in the organization of the College was in 1862. After the abandonment of the scheme for the amalgamation of Woolwich and Sandhurst, the Council of Military Education turned their attention to the subject of enlarging the latter establishment, with the view of making it a general military college, through which all candidates for commissions in any branch of the service, except the Artillery and Engineers, should be required to pass. The general outline of a scheme having this object in view was submitted by the Council as early as July, 1858, to General Peel, then Secretary of State for War. It was still under consideration when General Peel left office, in the summer of 1859, and was again brought under the notice of his successor, Lord Herbert, in August of that year.

After some consideration, the general principle of the scheme was sanctioned by Lord Herbert, in December, 1859; but no immediate steps were taken for carrying the plan into operation. At the end of 1860, however, the Council were directed to draw up a detailed scheme of organization for the College, on the assumption that all candidates for commissions in the Cavalry, Guards, and Infantry, would be required to pass through a year's course of instruction there; a vote was also included in the estimates of 1861 for commencing the enlargement of the buildings, with the ultimate object of providing accommodation for 600 cadets. The details of the scheme were, after some correspondence, fully matured, and were on the point of being submitted to Her Majesty for approval, with the view of the new system coming into effect on the 1st of January, 1862. The plan, however, met with very great opposition, both in the House of Commons and from the authorities of the universities, who regarded it as necessarily leading to the exclusion of university men from the army. In consequence of this opposition, the Under-Secretary of State for War, toward the end of the session of 1861, announced, in the House of Commons, that the new system should not come into operation until Parliament had had a further opportunity of expressing their opinion upon it. The original plan was also so far modified that the extension of the College was limited to providing accommodation first for 500, and then for 400 cadets, in the first instance; but the abolition of appointments to direct commissions, and the system of passing all candidates for commissions in the Line through the College, were still contemplated, though the commencement of the system was deferred until the 1st July, 1862.

The question was in this state at the time of the death of Lord Herbert, in August, 1861. Sir George Lewis, who succeeded him as Secretary of State for War, having, during the recess, reconsidered the question, announced, shortly after the commencement of the session of 1862, that it had been determined to abandon the idea of requiring all candidates for commissions in the Line to pass through the College, and that the system of appointments to direct commissions by purchase would be maintained. At the same time, it was proposed that *non-purchase* commissions should in future only be obtained by passing through Sandhurst, and that an enlargement of the College to 336 cadets should take place, to provide for the increased number of non-purchase commissions caused by the amalgamation of the Indian with the Imperial Army.

Even in this modified form, the plan for the extension of the College appears to have been viewed with considerable jealousy by the House of Commons. A vote adverse to it was actually at first carried; but the question having, in consequence of the representations of Sir George Lewis, been reconsidered, the plan proposed by the Government was at length agreed to. Regulations for the College on the new footing were issued on the 1st May, 1862. These regulations form the basis of the present system of the College.

One of the most important changes made at this time was the great increase in the number of free commissions placed at the disposal of the College. Under the old system which existed prior to 1858, while the institution was still a mere place of juvenile education, all cadets who passed in the six "steps," to which allusion has been made, received free commissions; but there was, strictly speaking, no competition for such commissions. After the alteration in the age of admission to the College, and the general revision of the course of instruction which took place in 1858, a limited number of free commissions were bestowed upon those cadets who stood highest in the final examination. A large number of these appointments, however, still remained in the gift of the Commander-in-Chief, and were granted to candidates who passed the ordinary examination for direct commissions. Since 1862, all non-purchase commissions have been reserved for cadets at the Royal Military College, with the exception of a small number (not exceeding on an average 12 annually) bestowed upon non-commissioned officers promoted from the ranks, and upon gentlemen who have held the appointment of page to Her Majesty. The commissions given to the latter are exclusively in the Foot Guards, and their number seldom exceeds one in each year. The free commissions allotted to the College are thrown open to competition among the cadets, with the exception of those reserved for Queen's and Indian cadets. Both of these classes of cadets have, since the institution of Indian cadetships, which took place simultaneously with the change of the College system, in August, 1862, been entitled to receive free commissions on passing a qualifying examination at the end of their term of residence.

The course of study at the College was, at the same time, considerably modified, with the view of allowing its completion, under ordinary circumstances, in one year, instead of two years, as formerly,—the maximum term of residence being fixed at a year and a half. An attempt was also made to render the course more strictly professional, and better adapted to qualify a young officer for the performance of ordinary regimental duties immediately on joining his corps, by the introduction of instruction in military law, interior economy, etc.

The age of admission was fixed at 16 to 20 for candidates for the Infantry, and 16 to 22 for those for the Cavalry,—an extension of a year in these limits being for the first time introduced in favor of students at the universities. A further privilege held out to the latter class of candidates was that, while others could only obtain admission by competitive examination, the fact of having passed certain university examinations was of itself made a qualification for admission. These concessions, which, at first, were made to the Universities of Oxford, Cambridge, and Dublin, have been since extended to the other universities.

The number of cadets was never raised to the extent contemplated in the plan proposed by Sir George Lewis. It was originally intended that the College should accommodate 336 cadets, divided into four companies of 84 each; but the establishment was ultimately fixed at 250. This increase, however (the numbers having, previously to 1862, been 180), led to the addition, in August, 1862, of a third company to the two in which the cadets had been previously divided. An additional captain was appointed to command this company, and, at the same time, three subaltern officers (one to each company) were, for the first time, added to the strength of the establishment, to assist the captains in the charge of the companies. Simultaneously with this, an important alteration was made in the discipline of the College, by abolishing the system which had hitherto prevailed of employing the sergeants to assist in maintaining discipline by reporting the cadets for offences committed against the regulations.

The increase in the establishment also necessitated in this year an augmentation of the staff of instructors.

The establishment of the Royal Military College in 1863, after the change of system had come into effect, was as follows:

General Staff.—1 Governor, 1 Chaplain, 1 Paymaster, 1 Quartermaster, 1 Surgeon, 1 Assistant-Surgeon, 1 Riding Master.

Staff College.—1 Commandant, 1 Adjutant, 9 Professors, 30 Students.

Cadet College.—1 Lieutenant-Governor, 1 Major and Superintendent of Studies, 3 Captains of Companies, 3 Subalterns, 250 Gentlemen Cadets, 1 Adjutant, 40 Professors and Instructors, of whom two were employed also at the Staff College.

The organization of the College has undergone no material alteration since 1863, with the exception of the abolition of the office of Lieutenant-Governor, and the substitution for it of that of Commandant of the Cadet College. The change, though decided upon in 1862, was not carried out during the tenure of office of the officer who, at that time, held the appointment of Lieutenant-Governor, and did not actually take effect until 1864. The Lieutenant-Governor, though nominally the deputy of the Governor, had exercised no control over the Commandant of the Staff College from the time of the institution of the latter establishment, in 1858. His functions were limited to the Cadet College, of which he was virtually, though not nominally, the Commandant.

The establishment of cadets was raised in 1865 to 300, and some slight alterations have, at various times, been made in the number of professors and instructors; but, in its general character, the establishment at the present time remains as it was in 1863.

The modifications which have since been made consist chiefly in the reduction of the higher limit of age for admission to 19 for all branches of the service (retaining, however, the former exception in favor of students from the universities); the discontinuance of the study of military law, etc.; and the extension of the ordinary course of residence from one year to a year and a half.

In regard to discipline, the system of assigning marks for good conduct, which was introduced by the regulations of 1862, has been discontinued, owing to practical difficulties which were found to occur in carrying out the system with uniformity. At the beginning of 1868, an alteration was introduced in the powers of the professorial staff with regard to the maintenance of discipline. Previously to this period they had exercised no disciplinary powers; they have since been required to take notice of all offences which come within their cognizance, either in or out of study, and have been empowered to place a cadet in arrest pending an inquiry into the offence. Even at the present time, however, the professors have no power of punishment, this power being confined to the military staff of the College.

According to the Royal Warrant of 1808, the four companies of cadets were placed upon the establishment of the army, and every one admitted to the College received a warrant of gentleman cadet, with the daily pay of 2*s.* 6*d.* Down to the year 1857, the regulations for admission to the College contained the provision that, "in conformity to the Royal Warrant, dated the 27th of May, 1808, all gentlemen cadets at the Royal Military College are subject to the Articles of War." This provision appears to have been omitted from all regulations published on the recommendation of the Council of Military Education since the reorganization of the College, which took place at the beginning of 1858. At the present time, a cadet, on admission, is required to sign a declaration "to conform, in every respect, to Her Majesty's Regulations, and to the rules and discipline of the service."

The Board of Commissioners, at the time of the report of the Select Committee of the House of Commons, in 1855, still continued to administer all the affairs of the Royal Military College, in virtue of the wide powers vested in them by the Royal Warrant of 1808. For some years previously to this, however, the War Office had exercised considerable control over the financial acts of the Board. On the appointment of the Council of Military Education, in 1857, the latter body began to superintend the course of instruction at the College, their attention having been directed to this subject in the first instructions issued to them on their appointment. At the beginning of 1858, they commenced to conduct the examinations for admission, and, by a Royal Warrant of the 1st October, 1858, they were formally appointed Visitors of the College, and required to report to the Commander-in-Chief upon the instruction given at it. The power of recommending either the appointment or removal of the professors and instructors was, by the same warrant, placed in their hands.

The original warrant of 1808 has never been cancelled, and the powers vested by it in the Board of Commissioners still, therefore, nominally remain in force, except so far as by the warrant of 1858. Since this time, however, the connection of the Commissioners with the management of the College has been gradually diminished. In 1863, the office of Secretary to the Board was abolished, his financial duties being transferred to the Paymaster of the College, and the performance of his other duties being provided for in the Commander-in-Chief's office. The discipline of the College still remains nominally under the superintendence of the Commissioners; but, even in regard to this point, their interference, except when questions of considerable importance have arisen, appears to have been little called for. Their duties of late years seem to have been principally confined to business connected with the management of the College property, in regard to which, although the estate is now formally vested in the Secretary of State for War, the former powers of the Commissioners are reserved.

The attendance in the College, since its reorganization, has been as follows, viz.:

1855	180
1862	250
1865	300

Staff of Government and Instruction, 1871-2.

President.—Duke of Cambridge, Field Marshal.
Vice-President.—Rt. Hon. Edward Cardwell, Secretary of War.
Governor.—Lt.-Gen. Sir D. A. Cameron.
Assistant.—Col. J. E. Addison.
Paymaster.—Major Oliver Nicolls.
Chaplain.—Rev. E. J. Rogers, M.A.
Quartermaster.—John Davies.
Surgeon.—A. McLean, M.D.
Assistant Surgeon.—John Greig, M.D.
Riding-Master.—Capt. C. C. Brooke.

CADETS' COLLEGE.

Adjutant.—Major W. Patterson.

Captains of Companies of Gentlemen Cadets.—Lt.-Col. W. R. Farmar, Lt.-Col. Alfred P. Bowlby, Capt. H. E. Couper.

Staff of Instruction.

Mathematics and Arithmetic.—Rev. J. W. Vintner, Rev. Alfred Deck, G. Hester, J. P. Ketley.

Fortification.—Capt. G. Phillips, Lt. E. D. C. O'Brien, Capt. H. L. Mitchell.

Military Surveying.—Capt. W. Paterson.

Military History.—Capt. E. M. Jones.

Military Drawing.—Capt. E. A. Anderson, Capt. C. W. Fothergill, Capt. R. L. Leir.

Landscape Drawing.—Robert Harley.

French Language.—J. Balagué.

Geology.—T. R. Jones.

Chemistry.—Edm. Atkinson, Ph.D.

STAFF COLLEGE.

Commandant.—Col. E. B. Hamley, C.B.
Adjutant.—Major A. S. Jones.

Professors and Instructors.

Mathematics.—Rev. J. F. Twisden, T. Savage.
Military History.—Major C. Adams.
Fortification and Artillery.—Capt. H. Schaw.
Military Topography.—Major S. B. Farrell, Royal Engineers.
Military Administration.—Capt. W. Walker.
French.—A. A. De Charente.
German.—Dr. Overbeck.
Hindustani.—J. Dowson.
Military Drawing.—Capt. E. A. Anderson.

QUEEN'S AND INDIAN CADETSHIPS.

THE creation of Queen's cadetships originated in the recommendations of the select Committee of the House of Commons on Sandhurst. At the time the Committee reported (in the year 1855) the age of admission to Sandhurst was from 13 to 15; in the following year, however, at the time the recommendations of the Committee were adopted by the Government, it was in contemplation to raise the minimum age for admission to the College to 16; and it was consequently decided that, in order to meet the case of those who under the former regulations would have been admitted as Queen's cadets at a younger age, a special allowance of 40*l.* a year might, at the discretion of the Secretary of State, be granted to a candidate qualified for a Queen's cadetship, at the age of 13, to assist him in his preparatory education, until he attained the age at which he would be eligible for admission to the College. This arrangement was sanctioned by the Treasury in 1856, and at first the results of the recommendations of the Select Committee seem to have been confined to granting candidates the special allowance in aid of their preparatory education, as no cadet entered until 1860.

The first public announcement of the institution of Queen's cadetships, and of the regulations under which they were to be granted, was made by a General Order, dated Horse Guards, 5th January, 1858. It had by this time been finally determined to fix the ordinary minimum age for admission to Sandhurst at 16; but an exception was made in favor of the Queen's cadets, who were to be admitted one year younger,—at the age of 15. The following were among the regulations:

> These cadetships, of which there are twenty in all, are confined to the sons of officers of the army, Royal navy, and Royal marines, who have fallen in action, or have died of wounds received in action, or of diseases contracted on active service, and who have left their families in reduced circumstances.
>
> Gentlemen cadets on this class are educated gratuitously.
>
> The nominations, with the concurrence of the Secretary of State for War, are made by the Commander-in-Chief for the army, in the proportion of 15 cadetships, and by the First Lord of the Admiralty for the navy and marines, in that of five cadetships,—to whom applications are to be made.
>
> No candidate can be admitted under the age of 15, nor above that of 17.
>
> In a case where the services of the father and the circumstances of the family are deemed such as to constitute a claim, a candidate ineligible for immediate admission, on account of his not having attained the proper age, but being a promising youth, may, at the discretion of the Secretary of State for War, be allowed an addition to the compassionate allowance, with the especial view of promoting his education, until he is eligible for admission.

The regulations under which Queen's cadets are at present nominated are similar to the above, with the exception that the wording of the phrase "diseases contracted on *active service*" has been altered to "diseases contracted on *service abroad*," and that Queen's cadets, like other candidates, are not now admitted until the age of 16. An addition to the "Compassionate Allowance," not exceeding 40*l.* a year, may at the same time be granted to a candidate after the age of 13, in order to assist him in his education until he becomes eligible for admission to the College. The number of Queen's cadetships (20) includes both those who have entered, and those to whom the educational allowance is granted previously to their admission.

From the first institution of Queen's cadetships, the candidates nominated to them have been admitted to the College on passing a qualifying examination, and have received a gratuitous education; they were, however, originally required to compete for commissions without purchase, with other candidates, at the end of the College course. The privilege of obtaining a free commission on passing merely a qualifying examination was not extended to them until the institution of the Indian cadetships in 1862. As it was found necessary to exempt the Indian cadets from competition with other candidates for commissions without purchase, a similar privilege was extended to the Queen's cadets. Both classes of cadets, in addition to their free education and maintenance, receive clothing and pocket money.

The institution of Indian cadetships at Sandhurst took place in consequence of the transfer of the government of India from the East India Company to the Crown, and the subsequent amalgamation of the Indian and Imperial forces.

The notice of the admission of Indian cadets to the establishment appears for the first time in the College regulations of 1st May, 1862. Their number, like that of the Queen's cadets, is limited to 20. They are nominated, under the provisions of Acts 21 & 22 Vict. cap. 106, s. 35, and 23 & 24 Vict. cap. 100, by the Secretary of State for India in Council, from the sons "of persons who have served in India in the military or civil services of Her Majesty or the East India Company." The restrictions, however, regarding the death of the father and the circumstances of the family, which apply to a candidate for a Queen's cadetship, do not limit the nomination of Indian cadets. The expense of the education and maintenance of the latter is borne by Indian revenues.

REGULATIONS FOR ADMISSION, CLOTHING, BOOKS, PAYMENTS, ETC., 1867.

1. Candidates for vacancies at the Royal Military College, Sandhurst, will be required to undergo an examination under the superintendence of the Council of Military Education. Examinations for this purpose will be held in June and December of each year, at the Royal Hospital, Chelsea.

2. Twenty Queen's cadets will be borne on the establishment, being the sons of officers who have fallen in action, or have died of wounds received in action, or of diseases contracted on service abroad; and who have left their families in reduced circumstances. Fifteen will be sons of officers of the army, and five will be sons of officers of the Royal Navy and Royal Marines.

There will be, in addition, twenty Indian cadetships, for nomination to which the sons of persons will be selected who have served in India in the military or civil services of Her Majesty, or of the East India Company.

3. Candidates, whether for the infantry or the cavalry, must be between 16 and 19 years of age at the commencement of the term immediately succeeding their admission examination.

Terms commence on the 1st February and 1st August.

Students from the Universities will be admissible at the ages stated in Art. 11 of these regulations.

4. Every candidate for admission must apply (if under age, through his parent or guardian) to the Commander-in-Chief, to have his name entered on the list of candidates.

5. He must transmit with his application the following documents, viz.: (*a*) An extract from the register of his baptism, or, in default of that, a declaration before a magistrate, made by one of his parents, giving his exact age. (*b*) A certificate, from the minister of the Church or denomination to which he belongs, of his having been duly instructed in the principles of the Christian religion.

6. His name having been placed upon the list of candidates, it will be open to him to offer himself at any of the half-yearly examinations which may occur while he is within the prescribed limits of age. If unsuccessful in obtaining one of the vacancies at the college, he will be allowed to present himself at any subsequent examination until he has exceeded the maximum age. After he has exceeded the maximum age, he can only be admitted into the army on obtaining a direct commission by purchase, in the usual manner, after passing a qualifying examination.

7. He will be examined by a medical officer, who will ascertain whether he is free from all bodily and organic defects, and whether, as far as regards physical constitution, he is in every point of view fit for military service.

8. The following will be the subjects of examination, but no candidate will be allowed to be examined in more than *five* of these subjects:

	Marks.
Classics: Latin, 2,000; Greek, 1,600, - - - -	3,600
Mathematics, - - - - - - - -	3,600
English language, - - - - - - -	1,200
Modern languages, each, - - - - - -	1,200
History, with geography, - - - -	1,200
Natural sciences (*i. e.*, mineralogy and geology), -	1,200
Experimental sciences (chemistry, heat, and electricity),	1,200
Geometrical drawing, - - - - - - -	600
Free-hand drawing, - - - - - -	600

Of the above subjects, the elementary portions of mathematics and the English language are obligatory on each candidate.

The following elementary branches will be included in the obligatory section of mathematics, viz.:

In arithmetic: vulgar and decimal fractions, proportion, extraction of the square root, and interest.

In algebra: fractions, simple equations, and questions producing them.

In Euclid: the first three books.

To these elementary branches 1,200 marks (out of the whole 3,600 for mathematics) will be allotted, and it will be necessary for qualification that at least 400 be obtained, of which 200 must be obtained in arithmetic.

In the English language 400 marks will be allotted to correct and legible writing from dictation, and to composition; and of these it will be necessary for qualification that 200 be obtained.

Out of the remaining subjects the candidate may select any three.

No candidate will be allowed to count the marks gained in any of the three voluntary subjects, unless amounting to one sixth of the whole number of marks allotted to that subject; and for qualification he will be required to obtain on his five subjects a total of 1,500 marks.

No marks will be allowed to count in any subject left optional to the candidate, unless he gain at least one sixth of the whole number allotted to that subject.

9. Every candidate will be required to forward to the Military Secretary, Horse Guards, one month before the examination, a statement of the subjects he desires to take up, as well as a certificate from the master or tutor under whom he has been educated, of his general moral conduct for at least the two preceding years. If a candidate has failed in a previous examination he will only be required to forward a list of the subjects he selects, and a certificate of conduct between the two examinations. These documents are under no circumstances to be transmitted before the date above specified.

10. After the examination the candidates will be reported to the Commander-in-Chief in the order of their merit, and will be appointed accordingly as far as vacancies will allow.

11. Candidates who have passed the examinations called "responsions" and "moderations" at the University of Oxford, or those called "previous examinations" at the Universities of Cambridge and Dublin, or the matriculation examination of the University of London; or any one of the three examinations required for the degree of M.A. at the Universities of St. Andrew's and Glasgow; or the "class examination of the second year" (Curriculum of Arts) at the University of Aberdeen; or the "preliminary examination" at the University of Edinburgh; or the "first University examination" of Queen's University, Ireland, will be considered as qualified for admission to the Royal Military College without further examination.

Candidates from the Universities must not be more than 21 years of age for the infantry, nor more than 23 years for the cavalry. They will be required to send to the Military Secretary, Horse Guards, two months before the commencement of the term at which they desire to enter, certificates from the responsible authorities of their college of general moral conduct during residence at the University, and of having passed the above-mentioned examinations, together with the certificate of age, as required by clause 5

Should the number of general candidates be considerably in excess of the number of vacancies at the college, a suitable portion of those vacancies will be offered to the University and to the competing candidates respectively.

12. Candidates for admission as Queen's cadets must apply for a nomination to the Commander-in-Chief, if the sons of officers in the army; or to the First Lord of the Admirality, if the sons of officers in the Royal navy, or Royal marines. The above nominations will be made by the Commander-in-Chief or First Lord of the Admiralty, with the concurrence of the Secretary of State for War. The Secretary of State for India in Council will nominate to cadetships for the Indian services.

Provision of Necessaries, Books, Contributions, etc.

13. Every gentleman cadet will receive from the Military Secretary a list of the articles of clothing, books, and instruments with which he must provide himself before joining the college, and which he will be required to keep complete during his residence.

Any other books, instruments, or drawing implements that he may subsequently require for the prosecution of his studies, will be provided at the college, and charged to his account.

14. The amount of contribution for education, board, washing, and medical attendance, on account of each cadet, per annum, is as follows:

a. For sons of private gentlemen, - - - -	£100
b. For sons of admirals, and general officers having regiments or receiving Indian colonels' allowances, -	80
c. For sons of general officers, - - - - -	70
d. For sons of captains and commanders of the Royal navy, and field officers of the army having substantive rank, - - - - - - - -	50
e. For sons of all officers of the royal navy and army under the above rank, - - - - - -	40
f. For sons of officers of the royal navy and army who have died in the service, and whose families are proved to be left in pecuniary distress, - -	20

g. Queen's cadets and cadets nominated by the Secretary of State for India in Council, - - - Free.

15. General officers on the non-effective list will pay according to their last substantive rank.

Officers who have sold their commissions are, in this classification, reckoned as private gentlemen.

The cases of officers who have retired voluntarily upon half-pay previous to having served twenty-five years on full pay will be specially considered.

Officers who retire on half-pay after twenty-five years' service on full pay will be classified for payment with the rank in which they last served.

16. The orphans of officers whose claims do not come under classes *f.* and *g*, must contribute according to the substantive rank last held by their fathers.

17. For sons of officers who have retired on *full* pay, the payments will be according to the substantive rank last held by their fathers.

18. The sons of officers of civil departments having relative rank with officers of the army and navy, of the permanent militia staff, and of adjutants of the volunteer force, are admissible to the college on the same terms as those prescribed for the sons of army and navy officers of corresponding rank.

19. The sons of Indian naval and military officers not specially nominated by the Secretary of State for India will be admitted on the same terms as the sons of officers of the Queen's service.

20. Contributions for the sons of professors at the Staff and Cadet Colleges, at the Royal Military Academy, and at the late Indian Colleges, Addiscombe, will be - - - - - - - - - - £50

For the sons of masters at the above institutions, - - - - 40

21. Any change which may take place by promotion or retirement in the rank of the father of a cadet must be immediately notified to the Military Secretary, in order that the contribution paid to the college on account of such cadet may be regulated accordingly.

22. *Previously* to the admission of a cadet (not a Queen's cadet) he, or if a minor, his parent or guardian, will be required to make the following payments, viz.:

1. His contribution for half a year.
2. The sum of 15*l.* for his first equipment of uniform clothing.
3. The sum of 10*s.* for the support of the company reading-rooms.
4. A deposit of 15*l.* on account, for contingent expenses.

23. The above sums are to be paid to the paymaster of the College.

24. For each succeeding half year the regulated contribution is in like manner to be paid in advance, to the paymaster of the college, to whom must also be remitted the sum of 5*l.* for the further provision of uniform clothing, and such sum as may be required to make up the contingent deposit to 15*l.* The amount of this balance will be shown by an account, rendered at the end of every half year, of the sums paid out of the deposit during the past term.

25. No cadet on whose behalf these regulations in regard to payments have not been complied with, will be received at the college.

26. No refund of contribution will be made for any portion of the half year in which the cadet may be removed from the establishment, without the special sanction of the Secretary of State for War.

27. No payments will be required from Queen's or Indian cadets.

28. If a cadet be rusticated during a term, his contribution for the half year will be forfeited.

29. If absent a whole term in consequence of rustication or sickness, a contribution of 10*l.* will be required for the privilege of his name being kept on the rolls of the establishment, and for a vacancy being guaranteed at the commencement of the next term.

30. If absent from sickness during any portion of a term, a refund of that portion applicable to subsistence will be permitted.

31. In the cases of cadets of the orphan class, whose annual contribution is only 20*l.*, the amount to be paid when the absence extends over a whole term will be submitted to and determined by the Secretary of State.

32. Every gentleman cadet will be supplied with a weekly allowance of pocket money, at the discretion of the commandant of the college; but this allowance will not exceed 4*s.* 6*d.* a week for a gentleman cadet who is a responsible under officer, 4*s.* a week for a gentleman cadet who is an under officer, 3*s.* 6d. a week for a gentleman cadet who is a corporal, and 2*s.* 6*d.* a week for all other gentlemen cadets. The expense of this allowance will be de-

frayed out of the amount deposited for the purpose of meeting contingent expenses, and in the case of Queen's or Indian cadets it will be borne by the public.

Discipline.

33. All gentlemen cadets are subject to such rules and regulations as are, or may be from time to time, established for the maintenance of good order and discipline.

34. Every gentleman cadet will be liable to be removed from the college at any time should his conduct be such as to render it obvious that his remaining would be either hurtful to the institution or unprofitable to himself.

35. To every cadet will be assigned, at the commencement of each term, 100 marks for conduct.

From this number deductions will be made in certain authorized proportions for every offence which shall have been met by a punishment of more than two days' drill.

Should the cadet forfeit more than three-fourths, or 75 of the above 100 marks, he will not be gazetted to his commission until all other gentlemen cadets of the same batch shall have been provided for; and should he lose all his marks for conduct he will be rusticated for one term.

36. Gentlemen cadets are strictly prohibited from contracting debts with any publican or tradesman in the vicinity of the college.

37. No perquisites or presents of any kind are to be received by any person belonging to the college from either the gentlemen cadets or their friends.

38. Gentlemen cadets will not be allowed to remain at the college during the vacations without the special sanction of the Secretary of State for War, on satisfactory proof being shown that they have no friends in the United Kingdom to whom they could go. Payment of 1*l.* 1*s.* a week will be required in such cases from those who are not Queen's cadets.

Termination of the Course, and removal from the College.

39. The course of study is calculated for a residence of three terms, or 18 months, reckoned from the commencement of the term in which a gentleman cadet may join. It is open, however, for any cadet, who at the end of his first term shall have proved himself qualified for promotion at once to the third term classes, to compete for a commission without purchase, or to be examined for a commission by purchase, at the end of his second term; but no fourth term will be allowed on any plea but that of long continued sickness, in which case special application must be made to the Commander-in-Chief, accompanied by an opinion from the surgeon of the college.

Gentlemen cadets allowed a fourth term will not be permitted to compete for commissions without purchase.

40. Examinations for commissions will be held periodically. The number of commissions to be given without purchase will be announced previously to the examination. These will be competed for and awarded to the candidates who are first in order of merit.

41. Candidates who have not succeeded in obtaining a place amongst those to whom commissions without purchase can be awarded, but who have obtained the minimum number of marks required for qualification, will be considered to have prior claims to all other candidates for commissions by purchase.

42. Queen's and Indian cadets will receive commissions without purchase on passing the qualifying examination. The names of those who distinguish themselves equally with competitors for commissions without purchase will be published in the same lists with the latter.

43. In every case a certificate of conduct and proficiency in military and athletic exercises will be required from the governor of the college before a cadet can be examined for his commission.

44. Any gentleman cadet desirous of entering the Royal Artillery or Royal Engineers will be permitted, if otherwise eligible, to offer himself as a candidate at any of the competitive examinations for admission into the Royal Military Academy at Woolwich; and his position at the Royal Military College will not be affected by his failure at such examination.

45. No gentleman cadet will be allowed to present himself at a direct commission examination during his residence at the Royal Military College.

46. No gentleman cadet is to be removed from the college without the permission of the Commander-in-Chief, obtained through the governor of the

college. And when a parent or guardian intends to withdraw a cadet, or, if of age, the gentleman cadet intends to leave the college at the end of a term, at least six weeks' notice of his intention is to be given to the governor. In default of such notice a quarter's subscription must be paid.

Miscellaneous.

47. The establishment for Queen's cadets having been sanctioned by Parliament when the age of admission to the Royal Military College was from 13 to 15 years, it has been decided that in any case when the services of the father and the circumstances of his family are such as to constitute a claim, an addition of not more than 40*l.* a year to the "compassionate allowance" may, at the discretion of the Secretary of State for War, be allowed to a candidate who is over 13, to enable him to complete his preparatory education, as he is ineligible for immediate admission into the college in consequence of the minimum age of admission having been raised to 16.

48. It is desirable that every candidate who is under 21 years of age should, at his admission, be accompanied by his parent, guardian, or some other responsible person, to satisfy the requirements of the college on his behalf.

49. The responsible parent or guardian of every successful candidate, and the candidate himself, before he can be admitted as a cadet, will be required to sign respectively the following declarations:

Declaration by Cadet.

"I ————————————, do hereby declare that I have attentively considered the regulations for admission to the Royal Military College, and I consent to abide by the same in every particular, as well as to observe and follow all such orders and directions as I shall from time to time receive from the governor, the commandant, or other officers or authorities of the Royal Military College. And I further hold myself bound to conform, in every respect, to Her Majesty's regulations, and to the rules and discipline of the service."

(Signature)————————

Declaration by the Parent or Guardian.

"I hereby declare that I consent to the admission of my (son or ward) to the Royal Military College, on the foregoing conditions."

(Signature)————————

Subjects of the Final Examination.

	Max. allowed to count.	Min. allowed to count.	Min. required for Qualification.
50. Field fortification and elements of permanent fortification, including preparatory course of practical geometry,	1,800	450	1,200
Military drawing and surveying,	1,800	450	
Military history and geography,	1,800	450	

	Max. allowed to count.	Min. allowed to count.
Mathematics:		
First Section.—Arithmetic: algebra, up to simple equations; Euclid, four books, use of logarithmic tables, elementary problems in heights and distances, and mensuration,	1,200	300
Second Section.—Euclid, Books V., VI., and XI. (propositions 1–20), higher algebra, plane trigonometry, and mensuration,	1,200	—
Third Section.—Practical mechanics and hydrostatics,	1,200	—
Higher fortification,	600	300
French,	1,200	300
German,	1,200	300
Chemistry,	1,200	300
Geology,	1,200	300
Free-hand drawing,	600	150

In order to qualify for a commission, every gentleman cadet will be required to obtain 1,950 marks in the obligatory section of fortification, military drawing and surveying, military history, the first section of mathematics, and one foreign language; of which number of marks 1,200 must be gained in the three *military* subjects before specified.

SUBJECTS AND COURSE OF INSTRUCTION.

The studies of the college are mathematics, fortification, military drawing and surveying, military history and geography, and one modern language (either French or German), which are obligatory on all cadets, and, in the final examination 1,950 marks (out of 5,400 required), with a certificate of proficiency in military and athletic exercises, are required to qualify for a commission. To these studies are added chemistry or physics, geology, and a second modern language.

For educational purposes, the cadet corps is divided into three companies, designated A, B, C, each company pursuing the same subjects at the same time, with a classification of members into sections, according to the results of the minor and term examinations. The minor examinations take place every six weeks, and the term examinations every six months, and the final examination at the close of the course, which occupies three terms of six months each. The final examination is conducted by examiners attached to the Council of Military Education. The final result, as bearing on a commission, is reached by adding the marks as determined by the average of the minor and term examinations, and the answers of the final examination.

The instruction is given in halls of study, of which there are 18, large enough to accommodate, each, 18 cadets, but generally occupied by 15. The lecture hall will accommodate 100 without crowding.

1. *Mathematics*, elementary for all sections, including arithmetic, algebra up to simple equations, euclid, the use of logarithmic tables, elementary problems in heights and distances, and mensuration; and higher in the third section, including trigonometry and practical mechanics and hydrostatics, occupies 21 hours a week during the entire residence. To this branch is assigned a professor, one senior master, and three other masters. To the highest proficiency in mathematics is assigned a maximum of 1,200 marks, and a minimum of 300 is allowed to count.

2. *Fortification* includes field and the elements of permanent fortification, with a preparatory course of practical geometry. To this study, which occupies three hours every day, or 18 hours per week, are assigned six professors, and to the highest

proficiency is awarded a maximum of 1,800 marks, with a minimum of 450. Field fortification is taught in the first two terms, plan drawing and practical work going on together. The cadets trace and execute portions of fieldworks, making and planting revetement, gabions, and fascines, and doing all but the heavy work, which is left to the sappers. They are also instructed in bridge making and in pontooning, and witness every species of work done in the hall, on the fortification ground.

3. *Military Surveying and Drawing* occupy together 17 hours, under 12 professors. The cadets commence by drawing from copies, then from models, being in the meantime also taught the use of instruments; then in six weeks after joining the corps, they are taken out to triangulate with the prismatic compass and pacing, and traverse roads. The former practice with the theodilite and sextant has been abandoned, and the whole instruction has been concentrated on the art of field sketching as of more importance to an infantry officer. To the highest proficiency in this subject is given 1,800 marks, and a minimum of 450 is allowed to count in the final result. In the final examination the candidate for a commission must obtain at least 1,200 marks in the above subjects.

4. *Military History and Geography* is under the charge of one professor and two instructors. The present course is to give instruction by lecture, in the organization and mode of action of the three arms, and explanation of the operation of the commissariat and transport department of an army, followed by a short and simple campaign. In the second half-year, two campaigns are selected, with a view to illustrate the generally received principles of tactics and strategy, and in the third half-year one campaign is thoroughly worked out in detail. The cadets take notes of the lecture, on which they are examined orally, and after the main propositions and facts are printed by the professor, a subsequent study and examination on the printed scheme is had. In this study the cadets draw plans of the theatre of war and of battles, showing the position of the opposing forces.

5. *Languages*, French and German,—the former with one professor and three masters, and the latter with one master. The usual course in either language is grammar, exercises, dictation, translation, and composition. To the highest pro-

ficiency in either, 1,200 marks are assigned, and a minimum of 300 is allowed. One of these languages is obligatory in the final examination, but the candidate can be examined in both. The cadets can change from one language to the other at the beginning of the term.

6. *Chemistry* (including sound, heat, electricity, and magnetism) and *Geology* (including mineralogy and physical geography) occupy each a half hour four days in the week, and employ part of the time of two professors.

7. *Freehand or Landscape Drawing* receives two lessons per week, first from copies and models, and in the third term one lesson per week from nature. To the highest proficiency is assigned 600 marks, and a minimum of 150 is allowed.

8. *Military exercises* enter into the programme for the day, and consist of gymnastics for the first term, gun-drill and riding (one lesson per week) in the second term, and two lessons in the last exercises for the third term. Parade and infantry drill occupy, in addition, half an hour before breakfast, and 50 minutes between the first and second period of study in the morning (9.30 and 10.50).

For qualification a cadet must obtain an aggregate of 1,200 marks out of 5,400 on the three military subjects, and a total aggregate of 1,950 of these. Similar proportions of marks must be obtained each term that the cadet may return in the following term.

RESULTS OF EXAMINATIONS.

Out of 2,399 admission examinations in eleven years, from 1858 to 1868, 444 were unsuccessful; and in the final examinations, in the same period, out of 1,726, 25 failed. The results of the examinations show better preparation from year to year.

EXPENDITURES.

The expenditures of the government, on account of the Military College, were as follows: for 1858–9, £27,969; for 1863–4, £39,690; for 1866–7, £36,416, exclusive of payments made by the cadets or by the Indian government, which, in 1866–67, was £4,237.

ROYAL MILITARY ACADEMY AT WOOLWICH.

HISTORICAL NOTICE.

THE Military Academy at Woolwich was instituted by George II. in 1741, to give instruction to officers who served in the Artillery and Engineers. It began in a small room in a building at Woolwich, where the Board of Ordnance used occasionally to assemble, under the instruction of two masters, who lectured by rotation during four consecutive hours in three days of every week. At first only the officers of the single battalion composing the Artillery, and of the corps of Engineers, were required to attend. In the second year non-commissioned officers, and privates too, were at liberty to attend, and upon its close cadets, to the number of five to each company of artillery, resorted to the hall. Being sons of officers of the corps, and not in uniform or under military control, the cadets became an element of disorder, which led to a more systematic organization. In 1744, the cadets were clothed in uniform, and collected into a distinct company, under two officers, with a drum-major. By 1782, the number of cadets had increased from twenty to sixty, and in 1798, to one hundred,—boarding with their families. In the last year arrangements were made to lodge and board the cadets by allowing 2*s*. a day per head, until by degrees, in 1857, an imposing pile of buildings had been erected, and the establishment for government and instruction consisted of 18 officers on the military staff, and some fifty professors and masters in the civil and educational corps.

REGULATIONS FOR ADMISSION.

Previously to the year 1855 admission to the Royal Military Academy could only be obtained by a nomination from the Master-General of the Ordnance. The limits of age for admission were at that time from 14 to 16, and the candidates nominated were required to pass an entrance examination before the professors of the Academy, which varied somewhat according to the age of the individual. A certain number of the candidates previously passed though the preparatory school at Carshalton, admission to which was equally obtained by nomination from the Master-General of the Ordnance, and were transferred to the Academy on passing an examination similar to that required from those who entered the latter establishment direct. The term of residence at the Academy varied, according to the progress of a cadet, from two to four years.

The inability of the Academy to meet the demand for officers for the Artillery and Engineers created by the Crimean war, led to the introduction of a new system of obtaining commissions in the scientific corps. At first a limited number of nominations were placed in the hands of the head masters of the great public schools of the country, and the candidates nominated by them were appointed to provisional commissions on passing an examination at Woolwich; but after a short time the principle of open competition for admission to the Artillery and Engineers was adopted, in 1855, by Lord Panmure, when Secretary of State for War. Simultaneously with this change—the first recognition of the competitive principle in regard to military education in this country—a great alteration was made in the limits of age for admission to the scientific corps. Both direct appointments to commissions in the Artillery and Engineers, without any previous special instruction, and admissions to the senior or practical class at the Academy, without passing through the lower or theoretical classes at that institution, were thrown open to public competition among all natural-born subjects of Her Majesty. The limits of age for candidates for the direct appointments were from 19 to 21. Those who were successful were in the first instance to receive provisional commissions, and to be placed for instruction under the Director of Artillery Studies, at Woolwich, for a period of about six months, at the end of which they were to be permanently commissioned. Candidates for admission to the practical class at the Academy were required to be between the ages of 17 and 19; those admitted were to remain in the practical class for six or eight months, after which, on passing an examination, they were to receive commissions in the Artillery or Engineers. The first competitive examination under this system (the regulations for which will be found below) was held in August, 1855, and was conducted by a body of examiners specially appointed for the purpose, under the direction of Canon Moseley. The examination for both classes of appointments thrown open to competition was the same, and was based on the general education of the country, the object being merely to compare the abilities and attainments of the candidates without reference to special professional knowledge. Two other similar examinations, both for provisional commissions and for admission to the practical class, were held in January and June, 1856, the only difference being that the limits of age of the candidates were somewhat extended, and that in these later examinations no commissions in the *Engineers* were offered to competition.

On the conclusion of the Crimean war, however, the system of appointing officers directly from civil life to commissions in the scientific corps, as well as that of admitting candidates to the practical class at the Academy, which had been adopted to meet the pressure of the war, came to an end. No other examination after that in June, 1856, was held for a year; but in June, 1857, the first competitive examination for admission to the ordinary course of instruction at the Academy took place. The limits of age for admission were fixed at 17 to 20, and it was announced that the successful candidates would remain under instruction at the Academy "until sufficiently advanced in scientific knowledge to pass a satisfactory examination."

Since this period open competitive examinations have been held regularly every six months for admission to the Academy; and though various modifications in their details have been made, their general character remains little altered. The limits of age for candidates, originally placed at 17 to 20, were, however, in 1862, reduced to 16 to 19, at which they are at present fixed.

The examinations for admission to the Academy, like those which had previously been held for provisional commissions and for appointments to the practical class, were at first conducted by Canon Moseley and a special Board of Examiners appointed by the Secretary of State for War, with whom the general management of the Academy, after the abolition of the office of Master-General of the Ordnance, remained. In 1858, however, the superintendence of the system of instruction at Woolwich was transferred to the Council of Military Education, who, since July, 1859, have conducted the examinations.

Although the principle of open competition for appointments in the scientific corps was first recognized in 1855, and in 1857 was extended generally to admission to the ordinary course of instruction at the Academy, yet the system of competitive examination did not become the sole and universal means of admission to Woolwich until the year 1861. Time was required to clear off the vested interests of candidates who had been placed on the old nomination list of the Master-General of the Ordnance; of youths who had been admitted to the preparatory school at Carshalton; of cadets who, at the time of the proposed amalgamation of Sandhurst and Woolwich, had obtained admission to the former institution on the understanding that they would have the opportunity of obtaining commissions in the Artillery and Engineers; and, lastly, of cadets at the Indian Military College at Addiscombe, who, on the abolition of the local Indian army, were transferred to Woolwich before receiving commissions in the Royal Artillery and Royal Engineers.

Out of 3,085 admission examinations in eleven years, from 1858 to 1868, more than one-half (2,136) failed. Of those who entered after this trial, in the same length of time, only three failed to pass the final examination.

STAFF OF GOVERNMENT AND INSTRUCTION.

President.—Duke of Cambridge, K.G.
Governor.—Major General J. L. A. Simmons. K.C.B.
Secretary and Treasurer.—Bt. Major E. J. Bruce, R.Art.
Professor of Mathematics.—M. W. Crofton, B.A., and five masters.
Professor of Fortification.—Lt. Col. J. J. Wilson.
  Instructors.—Major W. J. Stuart, and three others.
Professor of Military History.—Capt. H. Brackenburg, R.Art.
Professor of Military Drawing.—Lt. Col. A. W. Drayson.
  Landscape Drawing.—William Clifton.
Professor of Artillery.—Lt. Col. C. H. Owen, and five masters.
Professor of Practical Geometry.—T. Bradley, and two masters.
Professor of German.—C. H. Schaible, and two masters.
Professor of French.—Theodore Karcher, and two masters.
Professor of Chemistry.—C. L. Bloxham.
Chaplain and Classical Instructor.—Rev. W. F. Short.

EXPENDITURE FOR MILITARY ACADEMY AT WOOLWICH:

In 1858, £27,969; in 1861-62, £25,188; in 1866-67, £36,416,—exclusive of payments made by the cadets.

REGULATIONS FOR ADMISSION.

N.B.—All candidates for commissions in the Royal Artillery and Royal Engineers are required to go through a course of instruction at the Royal Military Academy.

I. Competitive examinations for admission are held in London twice a year, in January and July. They are conducted by examiners appointed for the purpose, in the presence and under the superintendence of the Council of Military Education.

The candidates must be between 16 and 19 years of age.

II. The admissions will be determined by the result of the examination, the subjects of which will be as follows, viz.:

				Marks.
1. Mathematics	Pure	Section I. Arithmetic, algebra, Euclid, plane trigonometry, - - - - - - -	2,000	3,500
		Section II. Spherical trigonometry, elements of co-ordinate geometry, and of the differential and integral calculus, - - - -	500	
	Mixed	:—Statics, dynamics, and hydrostatics, -	1,000	
2. English language and composition, - - - - - - -				1,000
3. History of England, its dependencies and colonies, - - - -				1,000
4. Geography (modern), - - - - - - - - - -				1,000
5. Classics	Latin language, - - - - - - - - - -			1,500
	Greek do., - - - - - - - - - -			1,500
6. French language, - - - - - - - - - -				1,000
7. German do., - - - - - - - - - - - -				1,000
8. Hindustani do., - - - - - - - - - - -				1,000

The examination in French, German, and Hindustani, will include writing from dictation.

9. Experimental sciences, *i.e.*, chemistry, heat, electricity, magnetism, -		1,000
10. Natural sciences, *i. e.*, mineralogy and geology, - - - - -		1,000
11. Drawing	Free-hand drawing of machinery, architectural, topographical, landscape, or figure subjects, - - - -	1,000

Every candidate must qualify in geometrical drawing; *i. e.*, drawing in ink, with accuracy, neatness, and to scale, the several problems of Euclid. The standard of qualification in this subject is 100 marks, which must be gained out of a maximum of 300 nominally assigned to it. But the marks so gained will not count toward the general aggregate.

III. No candidate will be allowed to be examined in more than five subjects, of which one must be mathematics, and no one who does not obtain at least 700 marks in section I. of pure mathematics, will be eligible for an appointment.

From the other subjects of examination, to which marks are assigned as above, each candidate may select any, not exceeding four in number, in which he desires to be examined. The rules for counting marks in such subjects are as follows:

In all subjects carrying marks, except the 1st section of mathematics, in which 700 marks are required, one-sixth of the number allotted to each must be gained before they can be allowed to count.

In classics, the subject is divided into two sections as above, either or both of which the candidate may take up as one subject; but he will not be allowed to count the marks gained in either section unless they amount to one-sixth of the number allotted to it.

In either *French*, *German*, or *Hindustani*, every candidate will be required to obtain for qualification one-sixth of the maximum of marks, whether he takes it up as a subject in which he desires to compete or not.

It should be understood that, although only a small qualifying test has been imposed in respect to modern languages, a knowledge of them on admission will contribute greatly to a candidate's future success at the Royal Military Academy.

IV. The candidates are allowed to answer as many questions as the time allotted to the subject will permit.

V. No candidate will be admitted unless he obtain an aggregate of at least 2,500 marks.

VI. The successful candidates will remain under instruction for about two years and a half, or until they are sufficiently advanced in scientific knowledge to pass a satisfactory examination, and they will then be qualified to receive commissions in the Royal Artillery or Royal Engineers. If, however, they should be found unable to qualify themselves within three years in their professional studies, or to acquire a sufficient proficiency in military exercises. or if at any time, by failure at the half-yearly examinations, it should appear improbable that they will ultimately succeed in qualifying for a commission, they will be removed. Further, every cadet will be liable to be removed temporarily or permanently on the commission of any of those offences to which such penalty is awarded by the regulations of the Royal Military Academy.

VII. Each cadet on joining will be required to pay a sum of 25*l.* to cover the expense of uniform, books, etc., and to bring with him the articles of clothing of which he will receive notice, and which must afterward be kept up at his own expense. He will also be required to pay a contribution of 6*l.* 10*s.*, payable in advance, for each half year of the time during which he remains under instruction; and a deposit of 5*l.* into the hands of the paymaster on account, for contingent expenses, which latter sum he will be required to make up on returning to the Royal Military Academy after each vacation, to cover any unavoidable expense that may be incurred on his account during the ensuing half year.

The annual contributions, however, for sons and orphans of naval and military officers will be regulated at the followig rates, as heretofore :

For sons of admirals and of generals having regiments,	£80
For sons of generals without regiments,	70
For sons of captains and commanders of the navy, and of colonels and regimental field officers of the army,	60
For sons of all officers of the army and navy under the above ranks,	40
For sons of all officers of the army and navy who have died in the service, and whose families are proved to be left in pecuniary distress,	20

The sons of general officers who are paid only on their commissions as field officers will pay the same contributions as the sons of field officers.

Officers who have sold their commissions are in this classification reckoned as private gentlemen.

The cases of officers who have retired voluntarily upon half pay previous to having served 25 years on full pay will be specially considered.

Officers who retire on half pay after 25 years' service on full pay will be entitled to be classified for payment with the rank they last served in.

The sons of officers of the civil departments of the army and navy, of officers of the permanent Militia Staff, and of adjutants of the Volunteer Force, are admissible to the Academy upon the same terms as those prescribed for naval and military officers.

The sons of Indian naval and military officers will be admitted on the same terms as the sons of officers of the Queen's service.

The sons of professors at the Staff and Royal Military Colleges, at the Royal Military Academy, and at the Royal Military College, Addiscombe,	£60
The sons of masters at the above institutions,	40

If a cadet be absent a whole term in consequence of sickness or rustication, a payment of 10*l.* will be required for the privilege of his name being kept on the rolls of the establishment, and for a vacancy being guaranteed at the commencement of the next term.

If a cadet be absent from sickness during a portion of the term, his pay will continue to be issued and credited to his account; but no refund of the contribution will be permitted.

If rusticated during a term, the daily pay will cease from the date on which the cadet is sent away, and the contribution made for the half year will be forfeited.

In the case of a cadet of the orphan class, whose annual contribution is only 20*l.*, the amount to be paid when absence extends over a whole term is to be determined by the Secretary of State.

VIII. Any gentleman who wishes to present himself at one of the half-yearly examinations must send in his name to the military secretary at the Horse Guards one month before the time of examination, forwarding with his application to be noted the following papers:

1st. An extract from the register of his baptism, or, in default of that, a declaration before a magistrate, made by one of his parents, giving his exact age.

2d. A certificate of good moral character, signed by a clergyman of the parish to which he belongs, and by the tutor or head of the school or college at which he has received his education for at least the two preceding years, or such other proof of good moral character as will be satisfactory to the Commander-in-Chief.

3d. A statement of the subjects of examination in which (in addition to mathematics) he may desire to be examined.

A candidate who has been examined before, when he applies for leave to present himself again, will only be required to forward the list of subjects he selects, and a certificate from his tutor or the head of his school, etc., for the interval between the two examinations.

IX. The candidates will be inspected by military surgeons on the first day of the examination, in order that it may be ascertained that they are free from any bodily defects or ailments calculated to interfere with the performance of military duties.

Extreme short-sight, or any serious defect of vision, is regarded as a disqualification.

The responsible parent or guardian of every successful candidate, and the candidate himself, before he can be admitted as a cadet, are required to sign, respectively, obligations to conform to the regulations.

SUBJECTS AND STAFF OF INSTRUCTION.

For instruction the Cadets are divided into five classes of equal strength, according to length of residence; forty-four in the first four classes, and forty-six in the junior. The subjects are:

1. Mathematics, under a professor and four instructors, is studied in three classes, and the final examination is held after a residence of a year and a half, with a maximum of 6,800 marks in all.

2. Fortification, under a professor and four instructors, is studied in four classes. The final examination is in the last class, and the maximum of marks attainable in all is 6,300.

3. Artillery, under a professor and three instructors, is studied in two classes; the second and first, and the final examination, is in the first, with a maximum of 6,200 marks.

4. Surveying and topographical drawing, under a professor and four instructors, is studied in all the classes, and the final examination is at the completion of the course, with a total of 4,200 marks.

5. Practical Geometry, under a professor and two instructors, is studied in two classes, and the final examination is at the close of the first year, with an aggregate of 2,100 marks.

6. Mechanics and Natural Philosophy, under one professor, are studied in the last two terms, and the final examination is in the last, with a maximum of 1,600 marks in the former, and 900 in the latter.

7. French and German are studied, each under a professor and two instructors, for four terms, and after the final examination in the second class. The total marks in each is 1,500. Hindustani can be substituted for German.

8. Landscape Drawing, under two instructors, is studied in three classes, and the final examination is in the third class, with a maximum of 1,500 marks.

9. Military History is taught by one professor in the last two terms, and has a maximum of 2,000 marks.

10. Chemistry, under one lecturer, is taught in the last term, and receives a total of 1,200 marks.

11. Gymnastics, drill, and riding are taught as follows: Regular gymnastic instruction is conducted by a superintendent and three sergeants, for at least six months, and practised through all the terms. Artillery drill, with gun, sword, and other military drill and tactics, are conducted partly by military officers and partly by the professors and instructors of artillery. Riding drill is conducted under the officers of the Royal Artillery, in the last two terms, and is practised four or five hours a week. Swimming is taught optionally.

12. Recreations and amusements are optional and at the expense of the Cadets. Workshops are maintained by the government, but tools and materials are furnished at the expense of the Cadets. There are two reading rooms.

SCHOOL PREPARATION FOR WOOLWICH.

From the returns and evidence furnished, it is an extremely rare occurrence for a candidate to go up direct from a public school which does not possess a Modern Department to the examination for admission to Woolwich. Out of 855 candidates admitted to Woolwich in 10 years—from 1858 to 1867—the six public schools of Eton, Harrow, Rugby, Winchester, Westminster, and Shrewsbury, only sent up five direct. Colonel Addison states that at Sandhurst, out of 320 admissions during the last two years, there have been only 16 from the nine schools mentioned in the Report of the Royal Commission on Public Schools; but from Cheltenham and Wellington College the admissions have been more numerous. Even for the direct commission examination, those who present themselves from public schools (including Cheltenham and Marlborough, where Modern Departments exist), without seeking the assistance of a private tutor, scarcely amount to five per cent. of the whole number of candidates. At the same time, it may be observed that the proportion of failures among such candidates in the latter examination is comparatively slight, not amounting to more than 8 per cent., while the average number of failures among the candidates generally during the last four years has been very nearly 25 per cent. In fact, the general tenor of the evidence goes to show that, in the case of the examinations both for direct commissions and for admission to Sandhurst, there is, or at least should be, no necessity for candidates who have had the ordinary education of a classical public school to have recourse to private tuition. The Woolwich examination appears generally to be regarded in a different light. Its higher and more special character, and the great importance attached to mathematics, coupled with the competition which exists for it, render it apparently doubtful whether success would generally be obtained by candidates from public schools—other than those where, like Cheltenham, instruction is given with a particular view to this examination—without a special preparatory tuition.

The general character of the "Modern Side" at Harrow, which was established in September of 1869, "for the benefit of boys for whom, from various causes, an advanced classical training seems undesirable," is explained as follows in a circular issued by the Head-Master when announcing the intention of adopting the institution :

The principal subjects of instruction on the "Modern Side" will be mathematics, French, German, Latin, history, English literature, and physical science.

The requirements of boys not intended for the Universities will be specially kept in view, including the case of those who are candidates for Woolwich or the Indian Civil Service. It is hoped that this provision may obviate the supposed necessity for removing boys to a private tutor's precisely at an age when the influences of public school life are most powerful and most salutary.

Except for purposes of instruction there will be no distinction whatever between boys on the Modern Side and boys on the Classical Side.

No boy will, for the present, be admitted to the Modern Side unless he has been in the school for at least a year, and has hitherto shown diligence and made fair progress.

The nature of the instruction in the "Army Class" at Eton is described by the Head-Master (Rev. Dr. Hornly) as follows:

The Army Class was established by Dr. Goodrich in the year 1858. It was established in order to give Eton boys greater facilities for preparing certain subjects which were required in the army examinations, and to obviate the supposed necessity of giving Eton boys a special preparation, elsewhere than at Eaton, in order to fit them for the army examinations.

At first fortification and military drawing were included in the course, and a considerable proportion of the ordinary school work (*e. g.*, Latin verse writing) was remitted.

This was not found to answer. The course included more than was necessary for the ordinary army examination, and not enough for the higher examinations at Woolwich. There seemed to be a danger of the class becoming a sort of refuge for the idlest boys in the school.

Dr. Goodford subsequently altered all this, and placed the class upon its present footing, which is as follows:

Two lessons a week (repetition lessons) are remitted to make time for lessons in modern history. English essays, or abstracts of what has been taught in school, are written by the boys out of school (one exercise a week), and carefully looked over. No other part of the ordinary school work (except the two repetition lessons) is given up. Boys cannot join the class till they are 16 years of age. They are expected to stay at Eton till the time comes for their examination. The class consists at present of 28 boys, with an average of 25.

The class has certainly been successful. No boy going up from Eton has failed yet in the army examination since the reconstitution of the class of which I have spoken. I think the class has done good in the school.

It will be seen that nothing more has been seriously attempted as yet than to secure boys from failure in the ordinary examinations. If boys are to be prepared at Eton for any higher competition, such as that at Woolwich, a very different course will obviously be necessary, and probably a system of "bifurcation" will be found indispensable.

I am not prepared to say that this may not be introduced with advantage at Eton; but the impending changes in the governing body at Eton, and the anticipated changes with regard to army examinations, make it difficult to commence any work of reconstruction at the present moment.

The most successful institutions in preparing candidates either for Sandhurst or Woolwich are the Cheltenham and Wellington Colleges — each having a Modern Department, in which Latin and Greek yield their supremacy to modern science and living languages.

The Modern Department in Cheltenham College was established in 1843 as a Military School, and is claimed to be such at this time. The studies of subjects consist of mathematics, drawing of all kinds, physical science, two modern languages (French and German), English, surveying, and fortification, both field and permanent. The principal (Rev. T. A. Southend), in his evidence before the Military Education Commission in 1869, states that his pupils, at the age of eighteen, went through the whole Addiscombe course, and all that was done at Woolwich, and a good deal of what was done at Chatham. The whole of his class, in 1868, went up for the entrance examination at Sandhurst, and passed. From twelve to fifteen go to Woolwich every year, and in 1869, forty out of one hundred and twenty in the Academy were prepared at Cheltenham. The special military instruction is based on a course of Latin and Greek.

Out of three hundred and twelve students in Wellington College, ninety-six boys are in the Modern Side, entering at the age of twelve and thirteen, and remaining till seventeen or eighteen. But of the ninety-six, forty are preparing for the Engineers or Artillery, and twenty for the Line. The subjects taught in the military division are the same as at Cheltenham, except fortification; and the head-master (Rev. Dr. Benson) claims, in his evidence before the Commission, that his graduates are as well trained in the same subject as the pupils of Sandhurst or Woolwich. He advises the establishment of exhibitions in the Military School, open to competition to the pupils of all the public schools, and regards the modern side as an essential feature in all public schools.

Rugby School was the earliest of the great Public Schools of England to make Physical Science a regular part of its curriculum, and to give any considerable prominence to modern languages and history; but its governing authorities have resisted all efforts to establish a distinct Modern Side.

The Rev. Dr. Temple, head-master of Rugby School (now Bishop of Exeter), in his evidence before the Commission, remarked that the general education of boys entering Sandhurst should be the same as that given to other boys of the same age, destined for any other profession than that of arms. His opinion was adverse to having a modern department, in which the ancient classics held a subordinate place, in a school in which the classics held the first, and over which the head-master presided. The modern studies should have an independent scope, and their own master, who will by his character and personal attention fix the standard of attainment. The great public schools should hold on to their present aim and methods, introducing other studies to perfect their mental discipline and results. No side sections or departments in any existing school can do the work of scientific school culture so thoroughly as an independent school, in which the natural sciences and modern languages are taught by the main staff of professors. All teachers, in any school, civil or military, should be specially appointed for their educational qualities.

In Marlborough College, a modern department exists, which was established to prepare boys for definite examinations in which they would not succeed if they competed direct from the classical side of the College, and at the same time to solve the problem of giving a good school education on a basis of instruction in which the dead languages hold a subordinate place. Boys enter the Modern School after they have reached the fourth form in the classical department, so that Latin and Greek constitute a substantial part of their attainments and discipline. The success of the graduates of this institution in competing for admission into the military or civil service of the government, or in any of the walks of active or professional life, shows conclusively that the modern curriculum with its studies properly adjusted, and a well trained staff, under an able head-master, is quite equal to the classical, not only in practical utility, but in comprehensive and liberal discipline.

ROYAL SCHOOL OF MILITARY ENGINEERING AT CHATHAM.

ORGANIZATION, ETC.

THE Royal Engineering Establishment at Chatham was instituted in 1854, to furnish a sound course of practical instruction in Military and Civil Engineering to the officers, non-commissioned officers, and sappers of the corps of Royal Engineers, in addition and prior to which both officers and men pass through the ordinary drill and military duties common to the army generally.

The present organization and staff are composed of a director; an instructor and assistant in construction and estimating; an instructor and assistant in field works; an instructor and assistant in surveying; an instructor and assistant in telegraphy, photography, and an assistant in signalling; a brigade major; quartermaster in charge of stores, and field officer for military discipline.

The number of officers under instruction, recently commissioned, captains and subalterns, - - -	81
Non-commissioned officers and sappers, average, -	1,200

NATURE AND LENGTH OF COURSE.

There are six distinct courses:

1. Drill and military duties, which occupy 107 days. This includes, besides the interior economy of a company, proceedings of courts-martial, boards of survey, courts of inquiry.

2. Telegraphy, signalling, submarine mines, etc., which occupy thirty-five days. This includes the construction and maintenance of lines, a knowledge of instruments and batteries, application of electricity to explosions, management of torpedoes, etc.

3. Chemistry, which occupies fifteen days. This course comprises the analysis of limes, cements, and other building materials.

4. Field works, military bridging, etc., which occupies 122 days. This comprises instruction in earthworks, pontooning, rafts, spar, and other temporary bridges, reports on existing fortresses, construction of railways, escalading, diving, etc.

5. Architectural course, which occupies 183 days. This course includes building material, design, estimate, and specification for a building, instruction and report, with hand sketches of various works in execution, lime and cement works, quarrying, brickmaking, etc.

6. Surveying and Astronomy, which occupy 183 days. This course includes trigonometrical survey, military reconnoissance, special survey, road reconnoissance, astronomical memoranda and calculations, adaptation of works of defence to a contoured site, inspection tours of works of defence in England, and report on same, isolated lectures on geology, electricity, machinery, etc., by selected professors.

The first allowance toward expenses of junior officers of the Royal Engineers, in visiting engineering works, at home and abroad, was made in 1854, and is now 500*l.* per annum.

INSTRUCTION FOR NON-COMMISSIONED OFFICERS AND SAPPERS.

All recruits for this corps join at Chatham, and for about sixteen months are subject to daily drill and military duties in field work and all branches of the engineer service, and are drafted off, from time to time, into the special classes in construction, photography, telegraphy, lithography, printing.

Synopsis of the Course.

The following synopsis of the instruction given at the Royal School of Military Engineering at Chatham, was drawn up by Major General J. L. Simmons, the Director of the establishment.

I.—THE SURVEY COURSE.

The course of surveying for the officers of the Royal Engineers is intended to qualify them for carrying on survey operations of every description, and for designing and laying out engineering works, so far as these are influenced by the features of the ground on which they are placed, or over which they are carried.

The course consists of two parts,—the one relating to surveying processes exclusively, the other to the uses made of the plans and maps prepared by such processes, for engineering purposes.

Under the first of these divisions the officers are practically instructed in astronomical, general, special, and reconnoitring surveying, including the accurate delineation of the inequalities of ground by levelling and by contours traced instrumentally, and also the giving reliefs to hill forms by sketching with the pen and drawing with the brush.

Under the second division they are exercised in the adaptation of works of fortification to contoured sites, and in the selection and survey of lines of communication by roads, railways, and canals, and in drawing up projects for their execution.

Astronomical Surveying.

The officers are taught the construction and use of astronomical instruments, and are practised in making observations with them. They study from published works and memoranda printed at the establishment, the most useful problems for finding the time, the latitude and longitude, the direction of the meridian, and the variation of the compass.

Examples of each problem are worked out by them from their own observations or from observations made in their presence.

The use of meteorological intruments and the reductions of the observations made with them are also practised.

General Survey.

As a preliminary exercise in drawing each officer constructs a plate of scales from data supplied to him. For particular information on the delicate and powerful instruments and apparatus which have been used in great national surveys, and which cannot be studied in the establishment observatory, the officers are referred to published works; and they are instructed in the adjustments, the unavoidable errors of construction, and the powers of the instruments put into their hands for the execution of their survey course.

The general survey comprises:

1st. *The selection and measurement of a base.*—The base is measured with an ordinary chain and a five-inch theodolite, and this measurement having been reduced to its horizontal value at the level of the sea, the section of the base is laid down on paper.

2d. *Triangulation.*—The measured base is extended by a triangulation over 10 or 16 square miles of country, and the relative altitudes of, and the distances between, the stations selected are determined from observations. The computed horizontal distances are laid down, and the azimuth of one of them is determined.

3d. *Traversing.*—The positions of the roads, streams, boundaries of woods, and other marked features, surrounding and intersecting an area of six or eight square miles of the country triangulated, are then determined by running traverses with a theodolite from one station to another, so as to cut up this area into spaces which will admit of being filled in by a less accurate method, without introducing an error in the plan.

4th. *Plotting of detail and completion of the work.*—The protracted lines are now transferred to another sheet of paper, and the detail, obtained as the traverses proceed, is plotted from the field-book. From this plot sketch sheets are prepared, and the remainder of the work is sketched in with the aid of a prismatic compass, the form of the ground being represented by pencil strokes, assisted by contours put in with the aid of a portable level.

The sketch sheets are etched in with a pen, and a finished brush-work plan of the complete survey, embracing all the information collected, is prepared from them, with the original plotted detail as a basis.

Special Survey.

A piece of ground, about half a mile in area, is surveyed with minute accuracy as for some special purpose, and is laid down on a scale sufficiently large to admit of the calculation of the areas of the enclosures from the paper. The method followed is the same as that pursued on the Ordnance Survey, and with the Tithe Commutation Surveys, etc.

Contouring.—On the ground thus specially surveyed contours are traced instrumentally at given vertical distances apart and are plotted on the plan.

Military Reconnaissance.

This is conducted on principles similar to those which govern the operations of the general survey; the instruments employed, however, are all portable. The measurement of a base is made by such means as readily offer themselves (generally by pacing), and the trigonometrical points are fixed simply by protracting angles observed with a box sextant or compass. The whole of the remaining features and details considered necessary in a military point of view are sketched in with the aid of bearings and pacing. The reconnaissance embraces about six square miles.

In addition to the topographical sketch of the ground, each officer sends in a detailed report of its general character, its resources, and military capabilities. Each officer also makes a hasty reconnaissance of a road with a view to its employment as a military communication. All the information which can be obtained as to the character of the country through which it passes, and towns and villages near it, together with the construction, gradients, etc., of the road, are noted on the face of the sketch.

Fortification Branch.

Every officer is required, in this branch of the survey course, to design one or more works of defence for the occupation of a site of which a contoured plan is furnished to him.

In performing this exercise the officer becomes expert in reading the various forms and slopes of ground, as expressed by contours; he meets with and learns to provide for some of the many modifications of the conditions of defence which the occupation of irregular sites necessitates, and he acquires facility in the application of descriptive geometry to the determination of the planes of defilade and the several planes of a work.

The data upon which the design is framed consist of a plan of ground shown by contours, and of some of the conditions to be filled by the proposed fortification, such as the objects for which the site is occupied, the strength of the garrison, the extent of the works, the nature of the defence of the ditches, the trace, or the profile to be adopted, etc.

On the completion of his design the officer writes a report explanatory of the character of the works he has adopted, and describing his arrangements both for the distant and near defence, with any improvements which have suggested themselves in working it out; and since the scale of the design admits of considerable accuracy in its preparation, he is required to enter very fully into the detail of the arrangement he proposes.

The report is accompanied by tables showing how the remblai and deblai are equalized, and that the distribution of the latter is economical.

Civil Applications.

Projects for a line of communication, general plan, and trial sections.—The officers are instructed in the general principles which should guide them in laying out lines of communication, whether by road, railway, or canal, and are then sent out to examine the country between two points five or six miles apart, and are required to decide on two or more routes which apparently offer the greatest facilities in point of gradients, soil, and the materials of construction. Availing themselves of the best map or plan they can obtain, they draw a plan showing approximately the divisions of the properties through which the trial lines are run; they then make trial sections; and from these sections and their previous examination of the ground, they determine on the line to be adopted, embodying in a report a general description of the country, the obstacles encountered on each route, the gradients, curves, etc., and also the calculations which led to their decision. In their calculations they estimate the cost of the necessary constructions on each of the trial lines, the cost of conveyance for heavy goods on an assumed basis of daily traffic, and the time occupied in each case for quick transit.

Working plan and section.—A length of one mile of the route determined on as the best is selected, and for this a special survey is made, which is laid down as a working plan, the line being picketed out when no objection is made by the owners of the property through which it passes. A working section of the line is also prepared from accurate levels.

Plan of details, etc.—For the works proposed on that portion of the line which is included within the limits of the working section, a plan of details is prepared, as well as a specification for the works and an estimate of their probable cost.

II. THE COURSE OF CONSTRUCTION AND ESTIMATING.

For this course 142 days, including Sundays, are allowed. The course is divided into four parts.

Part I.—Theory of Construction.

This part consists of a series of examples in construction, about 50 in number, which will be varied from time to time.

They are drawn up with a special view to the application of the mathematical knowledge already possessed by the officers to some of the cases which they are likely to have to deal with in practice.

References are given in the margin of the printed paper of examples to some of the many books in which the information necessary for their solution can be found.

The instructing officer will explain every morning, except Saturday, as many of the examples as he considers the officers can work during the remainder of the day, and the officers are expected to study these subjects from some one of the books referred to.

The object of these short explanations is twofold: 1st, to explain the principles on which the particular cases or similar cases are to be dealt with; 2d, to impart in a condensed form some of the varied information which is familiar to all engineers of experience, but which an engineer at the commencement of his career often has a difficulty in finding.

The officers will take notes of these explanations, and write each morning notes at the head of the fair copy of the examples to which they refer. The examples explained on each day are to be worked out on that day in the fullest manner; the reasoning of each step is to be stated, and all rough calculations are to be left on the paper, so as to lessen as much as possible the labor of examination. They are to be brought to the instructing officer the following morning, and after examination are to be written out fair on ruled foolscap, quarter-margin, on the right-hand sheet, with explanatory diagrams to a large scale, where necessary, on the left-hand sheet.

The fair notes of each week's work must be sent in before the end of the following week.

The weights, strength of materials, and other information, will be found in the printed tables.

This part of the course occupies about 40 days, and while it continues leave will be granted on Saturdays and Sundays only.

Part II.—Materials.

The object of this part of the course is to give the officers some sort of guide in judging of the quality of the principal materials which they will have to use, as well as to afford them information as to the particular material most suitable for a building or engineering work.

It may be subdivided into three parts, viz., lectures given by professors in the lecture theatre; lectures given by the instructing officer; and visits made by the officers to lime works, cement works, brickfields, etc.

The lectures in the lecture theatre are delivered at the periods most convenient to the lecturer, but the notes taken by the officers form part of this course, and will be bound up with the rest of the papers.

The notes of the lectures delivered by the instructing officer are to be written out fair immediately after the lecture, in accordance with the instructions given, and brought to the instructing officer on the following morning.

A printed paper detailing the particular points to which officers visiting manufacturing works are to direct their attention will be given to each officer, and a report is to be sent in as soon as possible after each visit to the instructing officer.

Sketches to illustrate the lectures and visits are to be as numerous and complete as possible.

The value of these sketches for future reference, and as aids to officers in their professional constructions hereafter, will be very much enhanced by having the dimensions clearly written on them, which should include at least those of all principal parts of machines and structures.

This part of the course occupies about three weeks, inclusive of the time required to visit the works referred to.

The officers will also be instructed, after they leave the course of construction, in the method of testing the quality of some of the materials by chemical analysis, for which a fortnight is allowed.

Part III.—Valuation and Measurement of Work.

This part of the course will occupy in all about 37 days, and will commence with a series of lectures, the subject matter of which will be found chiefly in the printed "Notes on the Practice of Building" and "Notes on the Building Trades." They will comprise, in separate lectures for each trade,—

1. The materials, tools, etc., and apparatus employed, together with their application to the different kinds of work produced.
2. The technical terms in vogue.
3. The general practice of measuring and valuing.

Hints and memoranda useful in designing, estimating, and carrying out works will be given, and explanations afforded by reference to models and drawings, from some of which colored sketches, with the names and dimensions of the different parts given on them in full, will be made by each officer and attached to his printed notes. These sketches will be done in the Hall of Study from the originals deposited there.

A lecture will be given explaining the different steps taken in preparing the annual estimates of a district, to be laid before Parliament, and the various methods of carrying out the services which may be authorized.

The cost of a building will be approximately estimated by cubing it out from the general plans and elevations.

The quantities of the same building will then be taken out from the specifications, working drawings, and a model, by filling in a measurement form having the details of work done printed on it.

Details and estimates of the same building will be made out on W. O. Form 1554, the items and prices being taken from the W. D. Schedules of the district, and the descriptive part printed on.

Lastly, the quantities will be abstracted and brought into bill, as though the work were to be put up to tender, or as would be done in drawing out contractors' bills for work to be paid for on a schedule of prices.

The portions of the copper plates to be colored will be partly done in the course of lectures, but about a week at the close of this part of the course will be allowed to complete the whole. They are to be colored in the Hall of Study from pattern drawings deposited there. No drawing whatever to be removed from the Hall of Study.

Part IV.—Design.

At the commencemet of this part of the course each officer will read through the "Notes on Military Buildings," by Colonel Collinson, Royal Engineers, studying more particularly the parts which have special reference to his own design. The lithographed drawings which accompany them are not intended to be models to be copied from, but are given as examples of works executed, many of which with the advance of sanitary science have become obsolete as a whole. They contain many useful details still applicable.

The design is intended to afford to each officer an opportunity of applying the knowledge he may have acquired in the course to some case which he may actually hereafter have to deal with.

About six weeks are available for this part of the course, and the conditions under which the design is to be made will be furnished to each officer.

As a rule the design will consist of a general plan and report, with some part worked out in detail, this part being specified for and estimated.

The drawings are to be prepared in accordance with the instructions deposited in the Hall of Study.

Tour Reports and Lectures.

All tour reports and lectures pertaining to the course of construction will be written in accordance with the general regulations for reports, that is to say, on foolscap paper, quarter margin, on both sides of the paper, divided into paragraphs, with headings in the margin, and signed and dated by the officer. They will form part of Part II. of the course, and will be bound in the proper places.

In writing tour reports and lectures the object should be to condense as much practical information and fact into as small a space as possible without abbreviating the language or omitting any of the facts. Sketches should be made by hand, approximately to scale, but should be clear, and contain full dimensions. Statistical and tabular information should be given in full.

For the tour report each officer will receive a statement of the particulars of each work he has to report on.

Binding.

The whole of the notes, etc., of each officer will be bound in one or more volumes. Therefore, before leaving the establishment, each officer should arrange his notes in the order in which he wishes them bound.

III.—FIELD WORK COURSE.

The time allowed for this course is 122 days, including Sundays. While on it officers may be required to attend drill one day in each week, and also brigade field days.

The course comprises instruction in all those duties (with the exceptions mentioned below) which devolve upon the Royal Engineers when employed with an army engaged offensively or defensively, either at a siege or in the field.

The exceptions are surveying, reconnaissance, telegraphy, firing mines by electricity, etc., torpedoes, and demolition of permanent works; on all which subjects instruction is given to the officers while on other courses.

The officers are required to read carefully the notes on field work instruction, to make models in sand, etc., of such works as admit of this practice, to take part in the construction of the several works in the field, etc., and to draw up projects on the subject.

Before leaving the course an officer must be competent to impart instruction to sappers in all their field duties.

The practical instruction is divided into seven parts.

Part I.—Modelling in Sand, etc.

This part consists of making models of gabions, fascines, hurdles, and sap-rollers; of throwing up models in sand of portions of a first parallel and its approaches, of a second parallel, of single and double saps, both kneeling and standing, of a trench cavalier, of a lodgment by half double sap, of rifle-pits, and of trons-de-loup.

Also of making models in sand of field powder magazines, and of elevated, sunken, half sunken, and screen, gun and mortar batteries (ordinary and indented), revetted with gabions, fascines, and sand bags.

It includes the laying of model gun and mortar platforms, the making of a salient of a field redoubt, with gun en barbette, of a field kitchen, and of the passage of a wet ditch by means of gabions and fascines.

Also the erection of spar bridges of different forms with model spars, and the laying in of a cross-over road to connect two lines of railway.

Part II.—Siege Works.

This part consists of making gabions, fascines, hurdles, and sap-rollers; of tracing (part by night) parallels, approaches, batteries, etc.

Also of seeing parallels, approaches, batteries, saps, trench cavaliers, etc., constructed by the sappers; and the mode of extending men and setting them to work.

The officers are also required to take up for enfilade the prolongation of faces, etc.

Part III.—Works of Defence.

This part consists of instruction in forming abattis, entanglements, rifle pits, trons-de-loup, etc., and in putting up stockades, palisades, fraises, etc.

Part IV.—Mining.

This part includes boring and blasting rock, sinking shafts, driving galleries, making chambers and powder hose, loading, tamping, and firing mines, also the preparation and firing of fougasses.

Part V.—Bridging.

This part includes knotting, splicing, and lashing spars, diving, rowing in boats, packing pontoons, and forming temporary military bridges over streams with large and small pontoons, casks, etc.

Also the construction of spar, timber, and suspension bridges to reëstablish a communication by turnpike road or railroad.

Part VI.—Railways.

This part consists in seeing the mode of laying down and repairing lines of railway, and of putting in a cross-over road to connect two lines of railway, and also the mode of destroying railways.

Part VII.—Sundry Practices.

Under this head are included boring for water (with the American tube wells as well as with the ordinary apparatus), erecting field kitchens, filling and throwing hand grenades, and escalading, also the erection of field observatories.

The officers are, in addition, required to draw up the following projects:

1. Project of attack of a fortress actually in existence.
2. Project for the restoration of a bridge.
3. Project for a floating bridge.
4. Project for a field work as a bridge-head.
5. Hasty project for a temporary bridge, or, hasty project for the demolition of a portion of a line of railway.

IV.—MISCELLANEOUS SUBJECTS.

(*a.*) *Course of Telegraphy.—Fifteen days are allowed for this course.*

All officers under instruction learn the theory and practice of telegraphy and visual signalling, bearing in mind that a thorough knowledge of the theory will enable them to overcome difficulties which would be perplexing to the men, who can only be expected to learn the practical working of the telegraph.

The various instruments in use for signalling and testing are explained to them, and they are taught the ordinary methods of measuring electrical forces and resistances, and of testing conducting wires for insulation and conductivity, and for determining the nature and positions of faults. The degree of accuracy which may be attained in these measurements is pointed out to them.

They learn the European Morse alphabet, and the method of sending and receiving messages, but they are not expected to devote so much time to the subject as would enable them to become expert telegraphists.

Each officer is required to give in a project for the construction of a line of electric telegraph, including at least three stations. In the report are described the instruments to be used and the modes of connecting them in circuit; the batteries, the conductors, the supports, the insulators, and the mode of putting up the line; and the number of cells required to work the line is calculated.

An estimate of the stores and materials required accompanies the report, with a general plan showing the route proposed.

The various methods of exploding gunpowder by electricity are taught while the course of telegraphy is going on; the application of this branch of electrical science is made when the officers are employed on projects for demolitions by mining.

In the School of Telegraphy a certain number of the men of the corps are trained every year as telegraphists.

The instruments of which the use is taught are,—

The single needle instrument worked by voltaic electricity.

The Morse recording and sounding instrument.

The double needle instrument.

Wheatstone's magneto dial instrument.

Also day and night signalling with the approved visual apparatus.

Each man is required to read a specified number of words per minute, and to send correctly by each instrument, before he passes on to the next.

The European Morse alphabet is used with all the instruments, except with the double needle instrument, which has a special alphabet.

The men are taught how to make up and repair the voltaic batteries and instruments, and to put up conducting wires over ground, and to lay them underground, and also to test roughly for the position of faults. Their previous education does not generally admit of their acquiring a knowledge of the theory of electricity, or of performing the more delicate tests required in telegraphy.

The men who enter the Telegraph School are also instructed in the practical manipulation of Grove's voltaic batteries, Wheatstone's magnetic exploder, and the dynamo-electric machine, in the use of frictional electricity, in making the electrical fuzes, and in connecting and arranging the wires necessary for firing mines by electricity.

(*b.*) *Chemical Laboratory Course.—Fifteen days are allowed for this course.*

The object of this course is to enable officers and men at the establishment, who may show an inclination for chemical studies, to pursue them practically.

The course is confined to the chemical relations and behavior of the substances which affect the qualities of building materials, or which may influence the questions which are most likely to require the professional investigation of a military engineer. It is arranged with the idea of supplying the want of practical experience in dealing with substances used in construction, by giving an insight into their nature and composition; and also with that of imparting such information as may lead in a new colony, should an officer be called upon to act as its explorer and pioneer, to a more rapid development of its resources.

The course for the officers consists,—

1st. In making themselves acquainted with the action of reagents, both by wet methods and by the blow-pipe, on different simple substances, in experiments to which they are directed by a text-book.

2d. In applying the information so gained to the qualitative examination of substances, simple and compound, specially prepared as exercises for analysis.

3d. In the quantitative as well as qualitative examination of building stones, lime and cement stones, gypsum, brick earths, paints, solders, and other building materials. A sample of water is also examined, and a qualitative examination is made of one or more ores.

4th. In preparing, on an experimental scale, bricks, limes, cements, and plasters, directly from natural stones or earths by simple calcination, and also by the more complex method which it is often necessary to adopt.

5th. The chemistry of the voltaic battery.

The course for the men only differs from that for the officers in respect of the order in which the several divisions of the subject are taken up. The men, instead of commencing with a thorough examination of numerous simple substances, begin with a few easy experiments on recognizing lime and cement stones, and on the mode of ascertaining their comparative values, so that, in case it is judged inexpedient, in any instance, that the whole course shall be completed, the knowledge which has been gained may be of a character requiring comparatively little skill and intelligence to apply to practical uses.

A certain number of men only are taught.

(c.) *Course of Photography.*

This study is not compulsory; but any officer and a limited number of men who have completed the prescribed course satisfactorily, and who wish to study photography, are allowed to do so.

The officers devote their attention more particularly to the chemical theory of the subject, in order that they may be able to overcome the practical difficulties which constantly occur when this art is pursued in foreign countries under circumstances of climate and situation different from those in England, and when chemicals get out of order and produce anomalous results. In such cases men who have acquired considerable skill in manipulation, but who have no knowledge of chemistry, are unable to devise remedies or to overcome difficulties, and it is the place of their officers to assist them by their superior knowledge and intelligence.

The men are taught the negative wet collodion process in all its branches (except the manufacture of pyroxyline), also the dry process, and photozincography.

They are also practised in the use of the dark tent, and in taking negatives in the field, and of photographic reductions of plans.

It is seldom that their previous education admits of their becoming well versed in the chemical theory of the art, but the means of overcoming the usual practical difficulties are pointed out to them. Each man is required to enter in a note-book the various solutions, and to make memoranda of the processes.

(d.) *Lectures.*

Lectures are delivered between the months of September and April on civil and mechanical engineering, metallurgy, architecture, electricity and its applications, and on other subjects of a professional character. The lectures are attended by all the officers and men under instruction, and the former are required to take rough notes, and afterward to write them out fairly, for binding with their other work.

(e.) *Visits to Professional Works.*

With the object of giving an idea of the best methods of carrying on extensive works, and of imparting practical information on professional subjects, a certain number of the junior officers are selected every year to visit engineering, architectural, and other works of professional character, accompanied by one of the instructing officers of the establishment.

Of the various constructions and processes seen during these tours they make notes and drawings, which are embodied in the form of reports to the director, and are subsequently bound up with the other parts of the course.

General Note.—Further explanations of the mode of filling up the details of the course, and of the forms for the notes and drawings, are given in the special instructions.

(f.) *Demolitions.*

The ignition of gunpowder or other explosives by powder hose and Bickford's fuze as well as by electricity, both on land and submerged under water, is taught to all officers.

In order that the best methods of using gunpowder or other explosives for the demolition of works and buildings by mining may be thoroughly understood, each officer is required to make projects for the following demolitions, viz.:

1. A front of fortification, or some similar work, exhibiting various sorts of revetments, and requiring the simultaneous explosion of a large number of mines.

2. A casemate, powder magazine, or other substantial military building under two suppositions: 1st, that there is plenty of time, that sufficient men and tools are available, and that it is required to effect complete demolition without wasting gunpowder unnecessarily; 2d, that time presses, and that the demolition must be effected in the most expeditious manner possible.

3. A bridge or viaduct under two different suppositions, as in No. 2.

The mines in some cases are directed to be fired by powder hose, and in others by electricity.

Each of these projects consists of a memoir and explanatory drawings. The memoir comprises,—

1st. A description of the building, or work to be destroyed, in all points which may influence the mode of demolition.

2d. A general description of the proposed mode of demolition.

3d. The calculations for the charges of the mines.

4th. The mode of preparing and firing the mines.

5th. An estimate of the men, tools, and materials required and of the time necessary for the operation.

6th. An estimate of the gunpowder.

7th. When electricity is to be employed for firing the mines, a full description of the batteries, etc., is given, with calculations of the number of cells, etc.

The drawings include a plan and such sections as may be required to explain clearly the situations of the various charges of gunpowder, and of the shafts and galleries.

(g.) *Submarine Mines.*

All officers and a certain number of men are practised in the use of submarine mines.

The course consists of,—

1. The nature and construction of case.
2. Mode of mooring.
3. Mode of arranging and laying insulated cables.
4. Mode of testing fuzes, also testing cables for conductivity and insulation and for the detection of faults.
5. Modes of firing at will and by self-acting arrangements.

PROFESSIONAL INSTRUCTION FOR COMMISSIONED OFFICERS.

HISTORICAL NOTICE.

ALTHOUGH examinations preparatory to promotion had been instituted by the Duke of Wellington in 1850, no attempt was made to provide any general machinery for affording to officers of the army means of instruction, even in those subjects a knowledge of which was by the regulations of the service required of them. The Department of Artillery studies at Woolwich, originally instituted on a small scale in 1850, and the Royal Engineer Establishment at Chatham, supplied to the officers of the scientific corps, though to a much more limited extent than at the present day, opportunities of carrying on their professional studies after entering the army. But to officers of other branches of the service no means of instruction were afforded in any subjects beyond the mere routine of drill and regimental duties, except by the Senior Department at Sandhurst and the School of Musketry at Hythe. The state of the former institution, the advantages of which extended only to a very small proportion of the officers of the army, is described in the accounts of the Royal Military College and of the Staff College. The school at Hythe was first established in the year 1853, for the purpose of training a certain number of officers and soldiers in the new system of musketry, which was adopted on the introduction of rifled arms into the service.

The first official suggestion, with the object of remedying the deficiency of professional knowledge among the officers of the army, was made by Mr. Sidney Herbert, when Secretary at War, in 1854. The outline of the plan proposed by him at this time was sketched out in a letter addressed to Lord Hardinge, then Commander-in-Chief, and its details were subsequently more fully explained in speeches in the House of Commons. The scheme contemplated a general reorganization of the system of military education,—the improvement of the examinations instituted by the Duke of Wellington for admission to the army and for promotion,—the conversion of the Senior Department at Sandhurst into a special school for the staff,—and the introduction of a system of professional instruction for officers after entering the service. With the view of carrying out the latter part of the scheme, it was proposed, in 1854, to appoint garrison instructors at certain large stations both at home and in the colonies. It was not intended to make attendance at the instruction thus given compulsory, but a stringent examination in the subjects which entered into the course was to be a necessary condition of promotion to the ranks of lieutenant and captain respectively.

The scheme of garrison instruction proposed by Mr. Sidney Herbert met with the approval of Lord Hardinge, and obtained the sanction of the Treasury. A sum of 2,000*l.*, for the purpose of making a commencement in carrying it out, was inserted in the estimates for 1854–5, and the plan, as explained by Mr. Herbert in moving the army estimates, met with the entire approval of the House of Commons.

The outbreak of the Crimean war, however, in the first instance, interfered with the practical realization of the scheme, although it appears that some of the instructors had been actually selected for their posts, and that it was intended to send them out to the Crimea to acquire a practical acquaintance with such of the minor operations of war as would fall within the intended course of instruction. This latter intention was not carried out, and after the resignation of Mr. Sidney Herbert, which took place in the beginning of 1855, no further steps appear to have been taken in the matter. At the same time money continued to be voted for the purpose of carrying out the scheme (although no application of the funds was made), until the general reduction in the estimates which took place on the conclusion of peace in 1856; it appears also, from statements made by the Under Secretary at War, in the House of Commons, that the Government had never abandoned the idea of adopting some measure for the professional instruction of officers.

In the debates in both Houses of Parliament, during the Crimean war, numerous discussions took place on the subject of military education; the failure of the existing examinations for promotion, the lax mode in which they were carried out, the want of acquaintance with many of the mere rudiments of military science displayed by the majority of officers, and the necessity of supplying them with some means of instruction in the practical duties devolving upon them on active service, formed frequent subjects of remark. On the 5th of June, 1856, after the termination of the war, Mr. Sidney Herbert, then a private member, again brought his proposal for the appointment of garrison instructors before the notice of the House of Commons, in connection with his more general scheme for the improvement of the education of officers; but, although the proposal again met with the approval of nearly every speaker who took part in the discussion, the Government declined to pledge themselves to the adoption of the scheme in its details, as the question of the reorganization of the whole system of military education was then under consideration.

During the latter part of the year 1856, as has been elsewhere stated, the attention of the military authorities was seriously directed to the question of improving the education of the army. Nearly all the plans submitted to Lord Panmure with this object included, as an essential feature, the adoption of some means of professional instruction for officers after entering the service; and the machinery suggested was, in almost every case, based in its general principles on Mr. Sidney Herbert's original proposal for the establishment of garrison instructors. The Commissioners appointed in the same year to visit the military schools of the continent, while their inquiries were chiefly confined to the improvement of the education of the scientific corps, recommended in their report that young officers of all branches of the service should, after entering the army, go through some course of professional study; at the same time they suggested no machinery for carrying their recommendation into effect. The military witnesses examined, during the years 1856 and 1857, before the Royal Commission on the Purchase System, very generally concurred in the opinion that higher professional acquirements should be demanded from officers, and that means of instruction should be afforded to them; and the Commissioners, in their Report, endorsed this view in the following terms: "Nor can it be fairly said that the purchase system is the obstacle to introducing a better system of military education. A stricter examination before granting the first commission, an improved training afterward, and a further examination on promotion from ensign to lieutenant, are measures perfectly compatible with the system of purchase."

The system of garrison instruction suggested by Mr. Sidney Herbert appears to have found general favor at this period. The instructions issued to the Council of Military Education, on their appointment in 1857, directed them, in connection with the subject of the professional examination of officers up to the rank of captain, to consider the question "of the establishment of instructors at the large stations." The plan proposed by the Council, in 1857, did not contemplate the general appointment of either garrison or regimental instructors; its main feature was the establishment of officers' schools at depot battalion stations, through which all young officers, who were in the first instance to receive provisional commissions, should pass before joining their regiments and being permanently commissioned. This recommendation was supplemented by one for the partial establishment of district instructors at stations where classes of ten officers could be formed, for the more advanced instruction of those who had been some years in the service.

The great demand for officers occasioned by the Indian mutiny, combined with practical objections which were made to the Council's scheme, prevented their proposals from being carried into effect. The only immediate result of their recommendations was the establishment, in 1857, of a class at Aldershot for the instruction of officers quartered at the camp in military sketching. A full account of this institution, which has since been considerably developed, and is now called the Survey Class, will be found further on.

At a subsequent period the attention of the Council appears to have been directed more to the question of securing the professional competence of officers by a special military education before entering the service, than by compulsory instruction at a later period. The proposal, originally made in 1858, for requiring all candidates for commissions in the line to pass through Sandhurst, has been already described in connection with the Royal Military College. The Council have, however, never ceased to urge the expediency of providing officers, after they have entered the service, with facilities for instruction in the higher branches of military science; and in their last General Report they recommended the establishment of institutions similar to the Aldershot Survey Class at other large stations.

Although no general machinery has been introduced for affording instruction to officers of the cavalry and infantry after entering the service, various steps have, from time to time, been taken with the object of extending their professional knowledge to subjects beyond the mere routine duties of their own arms. In January, 1859, commanding officers were directed to require from the officers of their regiments reports and, if possible, sketches of the roads traversed when route marching in winter; and later in the same year an order was issued that officers of infantry should, whenever practicable, be instructed in great gun drill. In the present year a system of instruction in military signalling has been introduced at the School of Engineering at Chatham, to which detachments of officers are periodically sent. In addition to the recommendations of the present Royal Commission for the introduction of a system of garrison and regimental instruction, the Royal Commission on Courts-martial, in their recent Report, recommended that more attention should be paid to the education of officers in military law, and that stricter examinations in the subject should be enforced.

The necessity of an improvement in the professional acquirements of officers appears to have been almost universally recognized from the time when Mr. Sidney Herbert brought the subject to public notice in 1854. Various opinions, however, have been entertained as to the means by which the desired object could best be effected.

The different plans which have from time to time been suggested may be classified under two main divisions:

(1.) Those which propose a special military education for all candidates for commissions before entering the service.

(2.) Those which advocate, in preference, the postponement of professional instruction, at least for the majority of the officers of the army, until a later period, after the service has been entered, and the rank of officer been attained.

Under the former head comes the scheme suggested by the Council of Military Education in 1858, the adoption of which was at one time determined upon by the military authorities, for requiring all candidates for commissions in the cavalry and infantry to pass through Sandhurst. A similar proposal was suggested by witnesses to the Royal Commission on the Purchase System in 1856; it was supported by the authority of the Duke of Cambridge and Mr. Sidney Herbert (who had originally been opposed to it) before the Select Committee of the House of Commons on Military Organization, in 1860; and the Committee, in their Report, though declining to pronounce any decided opinion on the subject, stated that they considered the measure "well worthy of the most careful consideration." Of late years the same principle has been publicly advocated by Sir C. Trevelyan, who considers that there should be but two modes of admission to the rank of officer,—one through a military college, and the other by serving in the ranks; and the advantages which would result from passing all candidates for commissions through a military college have been urged by several witnesses, including His Royal Highness the Duke of Cambridge, before the present Royal Commission. On the other hand, opponents of this view have pointed out the objections entertained by them to any such measure.

Allied to the plan for making a military college the sole channel of admission to the commissioned ranks of the army is one for requiring all candidates for commissions to serve as cadets, in order to acquire a practical acquaintance with their duties, before obtaining the rank of officer. This proposal, originally suggested by Lord Clyde, before the Royal Commission on the Purchase System, has more recently been supported by the authority of Sir W. Mansfield and Lord De la Warr; the latter officer, however, appears of late to have somewhat modified his views, and to advocate at present, for all young men who obtain direct commissions by purchase, a probationary course of six or twelve months' instruction in military subjects and drill, at their parents' expense, prior to joining their regiments, in accordance with a plan submitted to the Commission. The cadet system has also been advocated by Lord Walden before the Commission.

To the class of plans which advocate the postponement of professional instruction for the majority of the officers of the army until after the service has been entered, belong Mr. Sidney Herbert's original proposal, in 1854, for the introduction of a system of garrison instruction—the recommendation of the Commissioners of 1856 "that young officers after entering the army should go through some course of professional study,"—the suggestion made by the Royal Commission on the Purchase System for "an improved system of training after the first commission is granted,"—and the proposal of the Council of Military Education, in 1857, for the establishment of depot battalion schools for young officers. Opinions founded on the same principle have been expressed by several witnesses before the present Commission. The system of garrison instructors at large stations, that of regimental instructors in each corps, and, lastly, a combination of both systems, have been respectively advocated by various authorities as the machinery by which the later instruction of officers should be carried out. Even those who advocate a special education at a military college as the universal condition of obtaining a commission do not, in the majority of cases, contemplate the cessation of all instruction on the commission being obtained; at the same time in many instances they do not consider that this later instruction should be made compulsory on officers, and, while recommending that facilities should be afforded for it, they maintain the superior efficacy of a system of preliminary military education at an earlier age.

I. SURVEY CLASS AT ALDERSHOT.

The survey class at Aldershot originated in an order of the Quartermaster-General in 1857, appointing two extra deputy-assistants to afford professional instruction to officers of the division stationed there in military sketching and surveying, field and permanent fortification, and photography.

These courses and conditions of attendance are as follows:

1. An elementary course comprises practical geometry, so far as is necessary for the understanding of the principles of surveying and fortification, plan drawing, the construction and use of scales, and military sketching.

The other course embraces surveying in its more advanced branches, military reconnaissances and road reports, field fortification, including the attack and defence of small posts, the construction of simple intrenchments, redoubts, and field works, profiling and tracing on the ground, gabion and fascine making, camping, and the construction of field ovens and cook-houses.

2. Officers will not be allowed to go through the course of instruction unless their commanding officer will certify that they are intelligent, zealous, and well conducted; but considering that the stay of regiments at this camp is frequently limited, the Lieutenant-General Commanding would wish that every facility should be given to officers to avail themselves of the instruction, even though they may not be thoroughly acquainted with all their duties.

3. Every officer wishing to attend the course of instruction will submit his application to his commanding officer, who will forward it with his recommendation and the certificate mentioned in the last paragraph, or with such remarks as he may have to offer, should he consider it his duty not to recommend the application.

4. Officers going through the elementary course will be struck off all duty for two months (Sundays excepted). They will go on flying columns.

5. Officers anxious to attend the second course will be allowed to do so for four months, during which time they will take all regimental duties which would entail extra work on the other officers, but will be excused all brigade and divisional duties, except those mentioned in paragraph 7.

6. Officers permitted to attend are not to absent themselves without leave from the Lieutenant-General commanding.

7. Officers are to be present at divisional field days, and when the division marches into the country during the winter months, either with the deputy assistants quartermaster-general sketching the ground, noting the movements, preparing reports, etc. (in undress, without swords), or if not so employed they are to fall in with their respective corps.

8. The number of officers attending is restricted to two per regiment.

9. The instruction will extend from 10 A.M till 1 P.M., excepting on Saturdays, when all the officers will attend till 12 only.

10. Staff officers who may wish to avail themselves of the instruction given at the Survey Office, or in the field, may attend at such hours as the nature of the duties they have to perform will admit.

11. Officers of the division generally will be assisted by the D.A.Q.M.G.s as far as practicable, in pursuing their studies in other branches.

12. A diary will be kept showing the names of all officers attending, the hours of attendance, the work done, etc.; this diary is to be submitted for the inspection of the Lieutenant-General commanding, and from it a monthly report will be prepared for the information of the Field Marshal.

13. Officers will be allowed the use of surveying instruments, but will have to provide their own drawing and other materials. They will, however, be permitted to retain all sketches, plans, and reports thus made on their own materials, after they have been returned from the Council.

The course actually carried out in 1868–69 was as follows:

Explanation, use, and construction of scales—several examples worked and a plate of scales drawn—mode of using the usual drawing instruments, protractors, and Marquois' scales.

Use of the prismatic compass—a road is traversed with the compass—bearings and measurements entered in a field-book, and the result plotted indoors on a large scale.

A plate of the conventional signs used by the topographical department, and a set of the seven examples of shading ground (by the late Major Petley), according to the latest scale of shade, are given to each officer to copy.

The general principles of plan drawing, and the mode of conducting a survey by means of measuring a base, and by a triangulation, are explained, and a flat piece of ground is sketched with the compass, and plotted in the field.

The method of representing ground by contours only is now explained and illustrated by models, drawings, etc., and it is shown how from a contoured plan sections and elevations of ground are made, also how by adding shade to the contoured plan, a certain pictorial effect is produced, etc.

Abney's pocket level and clinometer is explained, and various modes of rough levelling illustrated.

The method of using the pocket sextant is next shown, and the officers are taken to a plateau with strongly marked slopes, a base is measured, triangulation made by means of the sextant; and the artificial features filled in.

Contours at 25 feet vertically apart are now sketched in chain dotted lines, and several sectional lines taken by means of the level, clinometer, compass, and a scale of hypothenuses, and the various angles of inclination written on the sketch. The scale of shade is explained, and the officers taught how to apply it to the sketch of ground so contoured, and the sketch finished up as directed in the memorandum by the Council of Military Education.

Major-General Napier's pamphlet on reconnaissance is given to each officer, and four or five miles of road reconnoitred, sketched, and reported on.

A sketch on a small scale of as large a tract of country as time and weather will permit of is next made, triangulation done with the sextant or theodolite, and lastly, a rapid eye-sketch, without instruments, of some hilly ground.

Some work on field fortification, chiefly the chapters describing the defence of buildings, villages, and positions, also some work on surveying, is read.

At the conclusion of each course all sketches and reports, with a return showing the number of hours' attendance of each officer, his attention and progress, are forwarded to the Council of Military Education.

ADVANCED CLASS FOR ARTILLERY OFFICERS AT WOOLWICH.

THE necessity of more advanced attainments both in the science and practice of gunnery was pointed out by the Commissioners in 1856, but nothing was done till Colonel Lefroy urged the matter on the Council of Military Education in 1862, and in November, 1863, regulations were issued for the establishment of Advanced Classes of Artillery Officers at Woolwich.

A Director of Artillery Studies was first appointed in 1850, upon the recommendation of Field-Marshal Sir Hew Ross, G.C.B., R.A. (then Adjutant-General of Artillery). His duties were to take charge of and direct the studies of the young officers of artillery on first joining at Woolwich, to assist them in their professional pursuits, and read with them military law, military history, treatises on artillery, fortification, etc.

The appointment was made provisionally in the first instance, but confirmed before the close of a year. In April, 1853, the department was increased by the addition of French and German masters, who, besides assisting the young officers, were called upon to afford instruction in their respective languages to officers of artillery of all ranks who might be desirous of profiting by it.

An allowance of 300*l.* per annum was also made to enable a proportion of the more intelligent of the young officers to accompany the Director in visits to arsenals and fortresses abroad and manufacturing districts at home.

In July, 1855, the Director of Artillery Studies was allowed the following assistants: 2 Captains of Artillery, 1 Instructor in Surveying, 1 Instructor in Military Drawing, etc., 1 Lecturer on Natural Philosophy and Mechanics, 3 Non-commissioned officers, for the purpose of giving instruction to certain gentlemen provisionally commissioned from public colleges or schools after a competitive examination, but without passing through the Academy.

The Director was expected to advise and assist the efforts of officers of the Royal Artillery in improving their professional qualifications, and to arrange classes of officers for instruction in chemistry, photography, drawing, French, and German, at the Royal Artillery Institution. He was to inform himself of all the more interesting experiments under the Ordnance Select Committee, as well as the operations and processes carried on in the Government manufacturing departments. He was to arrange and conduct the annual military tour on the continent; and direct the studies of young officers.

Upon the formation of the Advanced Class in 1864, the staff was greatly increased, and an Assistant Director appointed, to take charge in the absence of the Director; to give instruction to classes of officers of the regiment sent to Woolwich from time to time, to officers from the Staff College, and to Militia and Volunteer artillery officers; to prepare questions for the examination of subaltern officers Royal Artillery for promotion, and report on the results of such examinations; to attend on foreigners of distinction, and other duties performed by the Director prior to the formation of the Advanced Class.

The following shows the attendance for the year ending 31st March, 1869:

Advanced class of artillery officers,	6	2 years' course.
Firemasters' class, R.A.,	7	9 months' course.
3 short course classes, — Royal Artillery,	29	2 " "
3 short course classes, — Military Store Staff,	8	
Shoeburyness gunnery class, R.A.,	20	3 " "
Officers of the late Indian brigades,	3	1 for 3 months' course; 2 for 2 months' course.
Officers from the Staff College,	13	1½ " "
Militia artillery officers,	6	2 " "
Volunteer artillery officers,	2	
	— Total, 94	

Non-commissioned Officers and Men, Royal Artillery.

2 long course classes, non-commissioned officers,	19	6 months' course.
10 short course classes, non-commissioned officers and men,	200	2 " "
Shoeburyness gunnery class, non-commissioned officers,	36	3 " "
	— Total, 255	

The young officers lately joined attend here twice a week to receive instruction, by lectures, from the Assistant Director of Artillery Studies on military law, courts-martial, and interior economy.

REGULATIONS FOR ADMISSION IN 1869.

The examination will be early in February of each year, at Woolwich, under the Council of Military Education.

Candidates for this examination must have undergone a course of instruction at Shoeburyness; or they must pass satisfactorily a preliminary examination in practical artillery.

No officer will be admitted who will not have completed six years' service on 31st March, 1870.

The subjects in which the candidates will be examined, and the relative importance attached to the subjects, are as follows:

Mathematics, - - - - - -	700
Chemistry and physics, - - - - -	300

Mathematics includes—

Plane trigonometry (so much of it as is included in the first 16 chapters of Todhunter's treatise).

Coördinate geometry of two dimensions (Hymer or Todhunter), viz.:

Straight line referred to rectangular, oblique, and polar coördinates. The circle, parabola, ellipse, and hyperbola, referred to rectangular and polar coördinates. The equation to the tangent, and the normal to the circle, parabola, ellipse, and hyperbola referred to rectangular axes, the sections of a right cone made by a plane.

Applications of the above to solutions of simple problems.

Differential Calculus.—Differential coefficient of simple, inverse, trigonometrical, and complex functions; proof of Taylor's and Maclaurin's theorems and examples of expansions of functions; differentiation of functions of two variables; limiting values of functions which assume an indeterminate form; change of independent variable; maxima and minima of functions of one variable; tangents, normals, and asymptotes to plane curves; differential coefficients of arcs, areas, etc.; radius of curvature (Hall or Todhunter).

Integral Calculus.—Meaning of integration; examples of simple integration; integration by parts; lengths of curves; areas of plane curves (Hymer, Hall, or Todhunter).

Elementary Mechanics.—(Whewell or Parkinson.)

Chemistry.—The general laws of chemical combinations,—the chemistry of oxygen, hydrogen, carbon, and nitrogen, and of their chief inorganic compounds. The metallurgic chemistry of iron. The chemical principles of the manufacture and explosion of gunpowder.

Physics.—In heat,—the subject of "thermometric heat" as treated in the first seven chapters of "Tyndall on Heat."

In electricity,—the subject of frictional electricity.

Officers competing are expected to be able to read French scientific works, such as Helie's "Traité de Balistique," Piobert's "Cours d'Artillerie," etc., etc., reference being constantly made to such works during the course of instruction.

At the conclusion of each year's course there will be a final examination in the subjects read during the year; the marks gained at the first examination being carried forward to the second, when certificates will be given to those students who are found qualified.

The course of instruction extends over two years.

The subjects of study the first year are: Pure mathematics; metallurgy; chemistry; mechanism and the steam engine; royal gun factories; royal laboratory, Part I.

The subjects for the second year are: Mixed mathematics and applied to gunnery; metallurgy; chemistry; heat and electricity; royal laboratory, Parts II., III., IV.; royal gunpowder factory, including manufacture of gun cotton; royal small arms factories, Enfield and Birmingham; royal carriage department.

In connection with the instruction on metallurgy, the class visit each year some of the principal private establishments in England and Wales, accompanied by Dr. Percy, F.R.S., the lecturer on this subject. They also visit locomotive and marine engine works in connection with the lectures on the steam engine.

The following processes of manufacture are noted:

In the Royal Gun Factories: Metallurgy of copper, tin, zinc, and their compounds; mechanical and chemical properties of gun metal.
Metallurgy of iron, including cast iron and wrought iron, steel and alloys; mechanical and chemical properties.
Principles of construction of cast guns.
Principles of construction of built-up guns, welding, etc.
The steam hammer.
Turning, boring, rifling, and sighting guns. All the machines, lathes, special tools, and processes.
Comparison of systems of rifling and breech-loading for cannon.
Gauges and micrometrical measurements.
Organization of labor in the Royal Gun Factories.
System of account keeping, pricing, and payment in the Royal Gun Factories.
Relations to the Director of Stores, Director of Contracts, Principal Superintendent of Stores, and Director of Ordnance.
Patterns, system respecting them.
Examination of Stores.
Duties of the Inspector of Artillery: proof of guns; examination of guns and stores.

The Small Arms Departments, Enfield and Pimlico, will follow the Royal Gun Factories, and be treated in the same comprehensive manner, including the system of supply of small arms to the army, their repair, and comparison of systems of rifling and breech-loading for small arms.

From the Royal Gun Factories the class will proceed to the Royal Carriage Department, where the subjects will be:
Selection and purchase of timber.
Seasoning of timber.
Sawmills.
Planing and other machinery applied to working of timber.
Construction.
Mechanical principles as applied in military machines.
Friction, draught, traction, locomotive power.
Harness.
Organization of labor in the Royal Carriage Department.
System of accountability and payment.
Prices.
Relations to Director of Stores, Director of Contracts, Principal Superintendent of Stores, and Director of Ordnance.
Patterns, systems respecting them.
Examination of stores.

Here will evidently conveniently come in the organization and duties of the department of the Principal Superintendent of Stores, including the detail of equipments for all services, and proportions of stores, packing ammunition, arrangement of magazines.

The last term will be devoted to the manufacture of gunpowder, ammunition, and generally the duties of the Royal Laboratory, including the chemistry of the subjects.
Selection and purchase of pyrotechnic material.
Examination and refining of saltpetre, etc.
Gunpowder and powder-mills.
Theory of gunpowder, qualities, effect of different sized grains.
Electro-ballistic apparatus, and other modes of proof.
Gun cotton.
Detonating compounds.
Other laboratory preparations.
Small arm ammunition, cannon ammunition, fuzes, rockets, etc.
Manufacture of bullets.
Casting of every description of projectile for smooth-bored and rifled ordnance.
Organization of the Royal Laboratory Department.
Supply of raw material.
System of account keeping and payment.
Prices.
Relations to the Director of Stores, Director of Contracts, Principal Superintendent of Stores, and Director of Ordnance.
Patterns, inspection. Examination of stores.

III. SCHOOL OF GUNNERY AT SHOEBURYNESS.

SHOEBURYNESS first became a station for artillery practice in the year 1849. The practice was, however, at that time confined to experiments, which were conducted on a very limited scale, under the department of the Director-General of Artillery. A battery was constructed and some wooden huts erected at the station in that year; but for several years nothing but experimental practice was carried on by batteries of artillery who were sent to Shoeburyness merely for the summer months, and were quartered, at least partially, under canvas. No permanent staff were employed, the senior officer present with the troops being in command of the station. In 1854 the establishment assumed a more permanent character, and was placed under a lieutenant-colonel of artillery as commandant, who was also at the same time superintendent of experiments. It still, however, continued to be merely a station for artillery practice and experiments, until 1859.

The objects for which the School of Gunnery was established are to ensure a completeness and uniformity in the instruction of the officers and men of the Royal Artillery in the use of the weapons and military machines they are called upon to use; impart to them a knowledge of the ammunition, stores, and appliances made use of in the artillery service; of the effect of shot and shell under various circumstances; and, by constant practice from guns of every description, to train and educate from year to year a number of officers and men who would carry with them to their respective brigades an amount of valuable knowledge and experience which would become in that way, and in due time, diffused throughout the Royal Artillery, in the same manner as the gunnery instruction for the Royal Navy on board the "Excellent," and the musketry instruction for the infantry at Hythe have percolated with such advantage through those services.

On the first of April in each year a class of from 20 to 25 officers is formed for what is termed a "long course," embracing a period of 12 months; and a class of about 40 non-commissioned officers, for a similar course.

These classes are formed into two separate squads, and entirely occupy the time of the chief instructor, one gunnery instructor, and four assistant instructors. They are instructed in the drills and exercises of every species of ordnance, and the mode of mounting and dismounting them under various circumstances and with different means; in transporting the heaviest guns from place to place and mounting them under difficulties; in making rafts; embarking and disembarking guns; making up ammunition; preparing demands for stores ; carrying on gun practice with shot, shell, etc. ; making signals; throwing up batteries as at a siege, and afterward testing their efficiency by firing at them; attending lectures on artillery subjects by the officers instructing the classes, and on subjects of a scientific nature, and bearing upon the science of artillery, by professional gentlemen engaged from time to time for the purpose.

The non-commissioned officers attend these latter lectures, and also receive from the schoolmaster, under the direction of the officer in charge of the class (and with great advantage), instruction in mathematics, and in mechanical drawing applicable to the course they are being carried through.

In addition to these "long courses," as they are termed, another class of 33 non-commissioned officers is sent every three months to go through what is termed a "short course," for the purpose of being instructed in the various duties connected with the service, transport, etc., of heavy guns.

The result of this system is that an officer and two non-commissioned officers highly qualified to instruct in all artillery duties and exercises are sent annually to each brigade; also eight non-commissioned officers well qualified to assist in the instruction of the non-commissioned officers and men of their brigades in most duties connected with heavy ordnance, and with enlarged views of artillery subjects generally.

Further instruction is imparted to the regiment by sending batteries from Woolwich, Aldershot, and other contiguous stations, to carry on their practice, and regimental duty. They take guards and fatigues, move guns, and otherwise prepare for experiments, and each in its turn goes through a short course of instruction. The officers and a proportion of non-commissioned officers of these batteries are formed into a class under one of the gunnery instructors and his two assistants, and when they have gone through a preliminary course, one of the batteries, or more if practicable, are taken off duty for a month, in order to go through a systematic course, which, though short, is nevertheless highly valuable.

The staff for government and instruction consists of:

Commandant and Superintendent of Experiments, Brigade major, Surgeon, Adjutant, Quartermaster, Master gunner, Sergeant-major, Quartermaster-sergeant.

School of Gunnery.

1 chief instructor, a field officer.
4 gunnery instructors (including 1 at Woolwich), captains.
1 first-class clerk.
1 third-class clerk.
6 first-class assistant instructors.
1 army schoolmaster.
22 store, magazine, and lobbymen.

Experimental Establishment.

1 Assistant superintendent.
1 second-class assistant superintendent.
1 first-class clerk.
3 laboratory sergeants.
3 range sergeants.
15 storemen, etc.

1 staff wheeler, 1 hospital sergeant, 1 photographer, 1 armorer, 2 wheelers, 2 smiths.

Elementary exercises for the purpose of instructing the squad in dealing with heavy weights without machines, showing the best mode of applying power in moving guns, commencing with light and progressing to guns of 23 tons; instruction concerning ropes, tackles, knots, etc.

Field, garrison, and siege gun drill with smooth bore and rifled guns mounted on various carriages and platforms; drills with howitzers and mortars; throwing up works of offence and defence, arming them and laying platforms, making up ammunition, and arrangements for night firing.

Exercises with military machines; construction of sheers, derricks, etc., and placing them in awkward places; construction of trestle and other bridges for the purpose of passing heavy artillery across ditches, etc., and of rafts for similar purposes.

Embarkation of artillery and horses.

Mounting, dismounting, and moving heavy guns without the aid of machines.

Practice from heavy and field guns, smooth bore and rifled, at known and unknown distances, with full and reduced charges.

Battalion drill and telegraphy.

In the lecture room, instruction in the mechanical powers, in gunnery, systems of rifling, action and penetration of the service projectiles; construction, examination, and record of guns.

Army administration as affecting artillery.

Lectures on gunpowder, gun cotton, and fulminates; on metallurgy; on the various modes of computing velocities and the instruments employed; on electricity and steam; on strategy and tactics.

Cordage, knotting, tackles, parbuckling, pinching, slewing, etc.

Mounting and dismounting with and without gins.

Drill and practice with 32-pr. and 8 seconds guns.

Drill and practice with mortars on standing and travelling beds, also mounting and dismounting.

Drill practice with 40-pr. and 64-pr. guns, firing at moving target; drill with 7 seconds B. L. guns; drill with 7 seconds, 9 seconds, and 12 seconds M. L. R. guns and practice; dismounting and mounting the above.

Laying platforms, etc.
Use of platform wagon.
Light sheers.
Rocket drill and practice.
Facing B. L guns.
Practical examination, etc,
Cordage, knotting, elementary exercises.
Ordinary shifts and machine drill.
Mortar drill and practice.
12-pr. B. L. gun drill and practice.
40-pr., 64-pr. and 7 seconds B. L. gun drill and practice.
7 seconds and 9 seconds M. L. gun drill and practice.
Dismounting 7 seconds and 9 seconds guns by gins and jacks.
Parbuckling 7 seconds and 9 seconds guns and moving on sledges.
Laying platforms.
Rocket drill and practice.
Sheers (heavy and light), derricks, etc.
Facing vent pieces.
Redrilling and examination of the non-commissioned officers.

STAFF COLLEGE AND STAFF APPOINTMENTS.

HISTORICAL NOTICE.

The Senior Department of the Military College at Sandhurst was constituted in 1808, to enable officers "to qualify themselves for the Quartermaster-General's and Adjutant-General's departments;" and during the Peninsular war, most of the officers in these branches of the service were educated there. So high was its reputation, that the French Staff School was suggested and modeled after i[illegible] [illegible]ives of economy, its independent government and instruction was gradually reduced, and its graduates, no matter how well qualified, were no longer sure of appointment and promotion, as against purchase, until, in 1855, it became virtually extinct, —the teaching force being reduced to two professors in mathematical studies, and the number of students to six. In the same year, the French Staff School, with its thirteen military and five civil professors, and its range of instruction covering the entire field of practical duties which belong to an efficient staff officer, was held up as a model. In the plans and discussions respecting the reorganization and extension of the educational system of the army, which followed the Crimean war—in the Report (1855) of the Select Committee of the House of Commons on Sandhurst; on the suggestions (1856) of the Commissioners on the Training of officers for the Scientific Corps; the plan of Mr. Sidney Herbert, as Secretary of War, in 1854 and 1856; in the instructions of Lord Panmure, in 1856; in the resolution of the House of Commons, July 28, 1857; in the recommendation of the Royal Commission on the purchase system, in their Report of 1857; in the plans of the Council of Military Education, in the same year—the supreme necessity of a staff college, with admission by competitive examination, and the assured encouragement of appointment and promotion on ascertained proficiency and general fitness, was so clearly demonstrated, that at the close (December 17) of 1857, the Senior Department of Sandhurst was changed to that of a staff college, with a corps of professors of its own. A separate building was completed for its accommodation, in 1862; admission was open to officers of all branches of the service by competitive examination. All appointments to the Staff were limited to graduates of the College, who had been attached, for specified periods, to each branch of the service, and to officers of approved ability in the field.

The present establishment consists of

1 Commandant; 1 Adjutant; 2 Professors of Mathematics; 7 Professors (1 in each) of Military history, Fortification and Artillery, Military Topography, Military Administration, French, German, and Hindustani; besides the services of the Riding-master, and the Professors of Chemistry and Geology attached to the Cadet College of Sandhurst.

CONDITIONS OF ADMISSION IN 1868.

The college consists of thirty students. Fifteen vacancies will be offered for competition annually. Only one officer at a time can belong to the college from a battalion of infantry or a regiment of cavalry, and only four officers from the Corps of Royal Artillery; but any number can compete. The officer desiring to compete must be serving with his regiment.

The qualifications requisite for admission are:

1. A service of not less than five years previous to examination, exclusive of leave of absence.

2. A certificate from his commanding officer, as to his standing as a regimental officer, and his general knowledge of the service, character, habits, and disposition in respect to employment on the staff.

3. Certificate of having passed the examination for a troop or company.

4. Medical certificate of good health and fitness for the active duties of the staff.

The subjects of the admission examination, and the relative value of each, in the final result, are

Mathematics,		1,200	Marks.
Military History,	600	900	"
Military Geography,	300		
French,		300	"
German,		300	"
Hindustani,		300	"
Fortification,		600	"
Military Drawing,		300	"
Mineralogy and Geology,		300	"
Chemistry, Heat, Electricity, and Magnetism,		300	"

In mathematics 400 marks are allotted to arithmetic, the first four books of Euclid, and Algebra, including questions producing simple equations; and of this number, at least 250 must be obtained for qualification.

Every candidate must take up either the French, German, or Hindustani language for qualification; the qualifying minimum is, in French, 150 marks; in German or Hindustani, 100 marks.

The remaining subjects, as well as the higher portions of mathematics, may be taken up or not at the option of the candidate, the marks gained therein being reckoned in determining his position in the list of competitors. No candidate, however, will be allowed to count marks in any subject left optional unless he obtains at least one-sixth of the number allotted to it.

COURSE OF STUDY.

The course of study occupies two years, and the yearly course is divided into two terms, viz., from February 1 to June 15, and July 15 to December 15. The subjects are

Mathematics.

French, German, and Hindustani.

Fortification and artillery.

Topographical drawing, military surveying and sketching.

Reconnaissance.

Military art, military history and geography.

Military administration, including the organization and equipment of armies in the field.

Military legislation.

Elements of natural philosophy, chemistry, and geology, as applied to the military sciences.

Exercises in composition will be afforded to the students during the whole course of instruction, in writing memoirs or essays on the subjects of the course.

Riding.

During the whole course, monthly reports of the application and progress of each student are forwarded for the information of the Council of Military Education. Examinations are held at the end of every half year; the summer examination being conducted by the professors of the college, and the winter examination by examiners independent of the establishment, under the superintendence of the Council.

EXAMINATIONS.

The examination at the termination of the first year is probationary, and any student who fails to obtain the minimum aggregate of marks specified below, is required to withdraw.

The following five subjects will be taken up by every student at the probationary examination, viz.:

	Maximum.	Minimum.
I. Fortification, - - - - - -	280 Marks -	90 Marks.
II. Military drawing and surveying, - -	270 " -	90 "
III. Military history, - - - -	300 " -	100 "
IV. Military administration and legislation, -	300 " -	100 "
V. French, German, or Hindustani, - -	400 " -	133 "

Every candidate is expected to obtain 800 marks on the above subjects.

All credits gained on the four military subjects are carried forward to the final examination.

Of the following subjects the student may select any two, and in those numbered from one to six, as well as in the language already selected as "obligatory," the student may, at his option, carry forward to the final examination the marks he gains, provided they amount in each case to three-fourths the allotted maximum, when he will be considered as finally examined in that subject:

1. Mathematics, lower course, - - -	400 Marks.
2. Mathematics, higher course, - -	500 "
3. French, - - - - - - -	400 "
4. German, - - - - - -	400 "
5. Hindustani, - - - - - -	400 "
6. Any other modern language, - -	400 "
7. Natural sciences, lower course, - -	150 "
8. Experimental sciences, lower course, -	150 "

In those numbered seven and eight, the marks gained are carried forward to the final examination.

In addition to any two of the above subjects, the following may be taken up at the probationary examination; and if 150 marks be gained in it, they may, at the option of the student, be carried forward to the final examination:

Spherical trigonometry and practical astronomy, 200 Marks.

The following are the marks attached to each subject at the final examination, including, in the maximum, the marks appropriated to the probationary examinations:

Subjects to be taken up by every student:

	Maximum.	Minimum.
Fortification and artillery, - - -	600 Marks -	300 Marks.
Military drawing and surveying, - -	250 " -	300 "
Reconnoissance, - - - - -	350	
Military art, history, and geography, -	600 " -	300 "
Military administration and legislation, -	600 " -	300 "
French, German, or Hindustani, - -	400 " -	200 "

Every candidate will be required to obtain for qualification an aggregate of 1,800 marks on the above five subjects.

Of the following subjects, the student may select any two, and the credits gained will count for position in the order of merit:

	Maximum.	Minimum.
Mathematics, lower course, - -	400 Marks - -	240 Marks.
Mathematics, higher course, - -	500 " -	300 "
French, - - - - - - -	400 " - -	240 "
German, - - - - - - -	400 " -	240 "
Hindustani, - - - - - -	400 " - -	240 "
Any other modern language, - -	400 " -	210 "
Natural sciences, - - - - -	400 " - -	240 "
Experimental sciences, - -	400 " -	240 "

In addition to any two of the above-mentioned subjects, the following may be taken up by any student who did not take it up at the first year's examination, or did not then obtain three-fourth marks in it:

	Maximum.	Minimum.
Spherical trigonometry and practical astronomy, -	200 Marks -	120 Marks.

In the examination in modern languages, great stress will be laid on original composition.

All officers recommended for staff appointments, who have not proved their fitness in the field, must pass examinations before a board of officers and by the Council.

a.—Aide-de-Camp.

Regimental Duty.—The candidate must be prepared in all the subjects required in the examination for promotion to a troop or company.

Tactics and Field Movements.—He will be expected to show a competent knowledge of the tactics and field movements of that branch of the Service to which he is destined to be attached as a staff officer, and a general knowledge of those of the other two arms; the examination will include the movements of a brigade, and will be based on the regulation books.

On being reported by the Adjutant-General to possess the necessary professional qualifications, the candidate will be examined by the Council in

English Composition.—The candidate's proficiency in this respect will be tested by his answers to the examination papers.

Foreign Languages.—He will be examined *vivâ voce* by the examiner appointed under the Council of Military Education in whatever language he may select and he will also write a short letter on a given subject in that language.

Military Sketching.—He will be required to sketch at least two square miles of ground selected by the Council. The sketch need not be elaborately finished, but it must clearly and intelligibly represent the features of ground, which must be determined by means of the pocket sextant or prismatic compass.

Field Fortification.—He must show a knowledge of the principles and construction of field works, and must explain the objects to which they are respectively applicable, as well as the modes of attacking and defending them.

b.—Brigade Major.

A certificate will be required from the commanding officer of the regiment to which the candidate belongs, or has belonged, that he possesses all the qualifications of a good adjutant. The examination for brigade major will be especially directed to the points more immediately connected with the duties attached to the appointment, as Military Law, the "Queen's Regulations and Orders of the Army," the Royal Warrant for Pay, Promotion, etc., and, in tactics, all that relates to alignments, points of formation, distances, etc. The subjects of examination are the same as in that for the appointment of aide-de-camp, but the examination will be, throughout, of a higher order.

c.—Deputy Assistant Adjutant-General, Deputy Assistant Quartermaster-General.

Military Drawing and Sketching, Judgment of Ground, and its Occupation by all Arms.—The candidate will be required to make a rapid sketch on horseback, with report, of about six square miles of country; and to select a position which might be occupied by a given force of the three arms, for some stated object, and to show how he would dispose the troops for that purpose. He will afterward be required to make a correct and more finished plan of the position selected, with the disposition of the troops shown upon it.

Practical Geometry and Trigonometry.—The examination in these subjects will be limited to determining heights and distances by ground problems, and the ordinary trigonometrical calculations with the aid of logarithms.

Castrametation.—The candidate will be expected to know the mode of encampment for each arm of the Service.

Permanent Fortification.—The theory and construction of permanent works, as exemplified in Vauban's or any other system the candidate may select, as well as the modes of attack and defence applicable to them.

Military History and Geography.—The candidate will be expected to give proof that he has carefully studied at least four of the most memorable modern campaigns, of which the details are best known, such as those of Marlborough, Frederick the Great, Napoleon, and Wellington, and in these he must be able to explain the apparent objects of the various movements and the reasons which he supposes led to their adoption, and, further, to describe the military geography of the seat of war.

Foreign Languages and Professional Subjects.—In languages before the Council of Military Education, as well as in professional subjects before the Board of Officers, the examination will be of a higher order than those in (*a*) and (*b*).

The examination for Assistant Adjutant-General and Assistant Quartermaster-General will, throughout, be of a higher order.

MUSKETRY, AND OTHER ARMY SCHOOLS.

SCHOOL OF MUSKETRY AT HYTHE.

The first school of Musketry was established at Hythe, [illegible], and was composed of detachments from regiments in the neighbourhood, viz.: a sergeant, a corporal, and eight rank and file from the first, second, and third battalions of the Grenadier Guards, Coldstream Guards, Scots Fusilier Guards, Rifle Brigade, etc., to the number of seven sergeants, seven corporals, and eighty-eight rank and file. In [illegible] a permanent corps of instructors of musketry was organized, and in 1861 a second school was instituted at Fleetwood, which was discontinued in 1867, as one establishment was found sufficient for training an adequate number of officers of the regular army, and a due proportion of officers and sergeants of militia and the Rifle Volunteer Corps.

In connection with the establishment at Hythe, district inspectors are appointed to superintend the general system of musketry instruction throughout the army, viz.: three in Great Britain, two in Ireland, five in the colonies, and ten in India.

The instruction embraces not only the practical use of fire-arms, but the details of construction, both of the weapon and ammunition, the theory of projectiles, and the comparative value of different arms for different services.

The staff of the School of Musketry at Hythe consists of 1 Commandant and Inspector-General of Musketry Instruction; 1 Deputy Assistant Adjutant-General; 1 Chief Instructor; 3 Captain Instructors; 1 Paymaster; 1 Quartermaster and Acting Adjutant; 1 Surgeon.

In addition to the preparatory and professional schools for officers of the British Army, already described, there are other public institutions of a military character and for the military service, which will be briefly noticed.

ARMY SURGEONS.

In addition to the competitive examination of candidates for the post of Assistant Surgeon, for which a medical degree is preliminary, the successful candidates must spend four months at Netley, where the Army Medical School is now located (since 1863), in connection with the Royal Victoria Hospital (capable of receiving one thousand patients), where large numbers of invalid patients of the army are treated. Here, with every facility of study, observation, and practice, instruction is given by four professors, each with an experienced assistant, in military surgery, medicine, pathology, and hygiene, and all the specialities of the military hospital and field practice, peculiarities of climate, etc. After spending at least four months in the hospital, laboratory, museum, and lecture-rooms, the candidate is then examined for his commission as Assistant Surgeon.

VETERINARY SURGEON.

Although not exclusively for military service, all veterinary surgeons in the army must hold the diploma of the Royal Veterinary College in St. Pancras, London, or of the Veterinary School in Edinburgh.

ARMY SCHOOLS FOR SOLDIERS AND SOLDIERS' CHILDREN.

In 1811, on the recommendation of the Duke of York, then Commander-in-Chief, a royal warrant was issued, authorizing the appointment of a sergeant-schoolmaster to each batallion for young recruits and the children of soldiers, with provision for room, fuel, and light in each regimental barrack, and allowance for necessary books and stationery. In 1846, to give greater efficiency and uniformity to the schools established under the warrant of 1811, a new warrant was issued, requiring that the sergeant-schoolmaster should obtain a certificate of fitness from the military training college at Chelsea, and ordering the appointment of an inspector of army schools. In 1854, the following classification of masters was introduced: *First Class*, at 7*s.* a day and certain allowances; *Second Class*, at 5*s.* 6*d.* per day; *Third Class*, at 4*s.* per day; and *Assistants* at 2*s.* The first-class schoolmaster was a warrant officer, and ranked next to those holding a commission; the second and third class ranked next to sergeant-major, and the assistants ranked as sergeants. At this time the privileges of the regimental schools were extended to the children of discharged soldiers, pensioners, and various persons employed about the barracks. A schoolmistress was also employed for the infant division of pupils, and for teaching needle-work to the girls. In 1863, the office of superintending schoolmaster, with a relative rank of ensign, was created, and four (since increased to twelve) from among the most experienced first-class masters, were appointed to inspect and examine all army schools in their several military districts, and candidates for pupil-teachers and schoolmistresses.

According to the report of the Council of Military Education, for March, 1870, there were two hundred and fifty-nine masters employed by the army schools, and four hundred and eighty-five mistresses and assistants in the children's schools. In Great Britain there were three hundred and eighteen schools, and thirty-five thousand three hundred and seven non-commissioned officers and men on the books, nine thousand three hundred and fifty-nine boys and girls, besides 11,414 children in the infant schools.

ASYLUM FOR SOLDIERS' ORPHANS.

Prior to the establishment of the Army Schools in 1811, two large institutions for orphan children of soldiers who had fallen in battle or serving at foreign stations, had been founded and maintained at the public expense.

The Royal Hibernian Institution at Dublin, Ireland, was commenced on a sum appropriated by the Irish Parliament in 1765, and chartered in 1769. It has large buildings, with thirty-four acres of land, and provides for four hundred and ten children on an annual parliamentary grant of twelve thousand pounds for its maintenance, besides the income from a small endowment.

The Royal Military Asylum in Chelsea was begun by the Duke of York in 1801, and can now accommodate five hundred children on a public grant of twelve thousand pounds, besides a further grant of three thousand pounds for furniture and clothing from the Board of Works and the general vote of the army.

NORMAL SCHOOL FOR TEACHERS IN ARMY SCHOOLS.

In the Military Asylum at Chelsea, since 1846, there has existed a Normal School, where teachers of army schools may review their studies, or candidates for vacancies, or pupil teachers, may qualify themselves by study, observation, and practice, for appointment as schoolmasters, and when found qualified they receive certificates of the first, second, and third class, and are paid accordingly.

MILITARY SCHOOL OF MUSIC AT KNELLER HALL.

In the British Army the cost of maintaining the regimental bands falls upon the officers. In the infantry a sergeant, a corporal and nineteen privates are taken from the effective strength of each regiment to form a band. These receive their ordinary regimental pay,—the rest of the pay, and the entire salary of the band-master, if a civilian, together with the cost of the music and musical instruments, are provided out of the Band Fund, which is raised by "stoppages" from the officers on first appointment, and promotion, and by subscription. This fund is managed by a committee of officers. Owing to difficulties in retaining the men, and of finding band-masters with all the requisite qualifications, the Commander-in-Chief (Duke of Cambridge) established a Military School of Music in 1856, in concert with the Secretary of War, which was opened in Kneller Hall for the reception of pupils in March, 1857. The institution must be viewed (1) as a barrack, and (2) as a school of music. (1). As a barrack it is under the direction of the Secretary of War, and is managed as any other barrack. (2). As a school it is under the immediate direction of a military officer (who is appointed by the Commander-in-Chief), and a musical staff composed of nine permanent professors, four occasional professors, and a varying number of special assistants who are selected from the first-class students. There is also a schoolmaster who gives instruction one hour a day in general knowledge to each class, and a military chaplain. The instruments taught in Soprano (8); Alto (3); Tenor (3); Bass (6). The students are divided into four classes, each of which is divided into sections according to the instruments to be learned. Seven hours a day are devoted to obligatory study—but more are given, and a restriction prohibits all practice after 6.45 in the evening.

This course of study occupies two years, and there is a higher which comprises, beside practical instruction in playing and teaching the instruments composing the band, some general acquirements under the theory of harmony. There is also practical training in the duties of a conductor. In addition to ordinary military music, classical concert pieces, or chamber music, specially arranged for wind instruments, are performed. Cheap admissions to the operas and principal concerts of the metropolis are obtained (900 in one year), to such of the advanced students as are recommended for diligence by the professors.

Pupils are selected from the various regiments, and often selected for this special purpose. Boys specially trained for the bands are obtained from the Royal Military Asylum, Chelsea, the Hibernian Military School, Dublin, and the Metropolitan Poor-law School. Each candidate must be examined by the surgeon of the regiment, and certified to as in good health and with no tendencies to disease liable to be aggravated by playing on a band instrument.

A military band-master is now sanctioned by the Government for any regiment and battalion throughout the service, who receive regimental pay of first-class staff sergeant, and 100*l.* from the Regimental Band Fund.

The expenses of Kneller Hall as a barrack are borne by the government; as a school of music, by the regimental officers—including an original assessment of 5*l.* for supply of instruments, and the salaries to about 1,100*l.* annually.

The average number of students annually admitted is 74; the average number in attendance, 148. The total number admitted since 1857 is 592, of whom 163 were practiced musicians, 63 band-masters, 271 band-men.

MODIFICATIONS IN 1871.

In 1867 a Royal Commission was appointed "to inquire into the Present state of Military Education and into the Training of Candidates for Commissions in the Army." The Report, with the minutes of evidence and illustrated documents, was quite voluminous, and has been followed with important changes in both the system of military instruction, and in the mode of making appointments and promotions in the army, that will be noted in detail in the following chapters, which are compiled from historical notices by the Secretary of the Commission, and recent Regulations for the government of the several schools and the examinations for appointment and promotions.

The most important measure affecting the British army, after repeated discussions of the principle, in the last and former Parliaments, and particularly in the last, on a bill of the Gladstone ministry, in which the votes of the Commons in favor was overruled by the Lords, was the abolition of the whole system of purchase and sale of commissions by Royal Warrant issued July 20, 1871. This radical change was followed (October 30) by a revision of the Queen's Regulations, in which original appointments and promotions in the military service are put on a new basis. Henceforth, commissions of the first grade are to be issued to sub-lieutenants, for any vacancy occurring:

1. To successful candidates, in the order of merit as ascertained by competitive examination in general subjects.
2. To graduates of the universities who shall pass a qualifying examination.
3. To Queen's Cadets, Indian Cadets, and Pages of Honor, who have passed successfully the final examination of the Military Academy, or its equivalent.
4. To non-commissioned officers who are recommended for promotion by their commanding officers. If more candidates apply than there are vacancies to be filled, appointment is decided by competition.
5. To a lieutenant of the militia, who shall pass the professional examination required.

Sub-lieutenants are eligible to promotion only after passing a professional examination, and only after twelve months' service with a regiment, under strict discipline, with liability to be removed for physical or moral unfitness. Within three years from the date of their commissions as lieutenants, officers may submit to an examination in respect to fitness for promotion to captaincies, and any officer failing to pass within three years, must retire from the army. Lieutenants are eligible to the rank of captain at any time after two years' service in the army, having passed the examination. A captain may be made a major after two years' service in the army; and a major is at any time eligible to a lieutenant-colonelcy, which means the command of a regiment.

Every promotion must now be made on the recommendation of the Commander-in-Chief, with the approval of the Secretary of State for War; and from the principles laid down in the Royal Warrant, as will be seen further on, every precaution is taken to insure a gradual advance by seniority, and a more rapid rise by meritorious service founded on intelligent and disinterested tests. By the new Warrant the Militia is brought into closer connection with the Regular Army. To the abolition of purchase, and promotion by professional preparation and service, may be added the autumn field manœuvres, inaugurated in 1871, with 30,000 men, and the localization of the Army, by assigning a corps with staff, train, men, &c., to territorial divisions of the country.

SCHOOLS AND PRACTICAL TRAINING FOR NAVAL ENGINEERS.

In addition to the higher theoretical instruction in Naval Construction, Steam, and Marine Engineering, and kindred branches, at South Kensington, and to the candidates for assistant engineers, furnished by the numerous marine engine factories, and ocean steamers, to which young men resort to acquire a practical knowledge of their duties, the Admiralty have established in the dockyard schools at Portsmouth, Devonport, and Sheerness, courses of study and practical training, and a system of test examinations, for the express purpose of securing a body of educated and skillful engineers, to meet the demands of this department of the service.

Boys between the ages of 15 and 16, can enter their names as applicants with the Superintendent of the dockyards, and if they can pass the medical examination and give evidence of good character, they are examined twice a year by the Civil Service Commissioners in Arithmetic, including fractions, square and cube roots; Algebra, including quadratic equations; Euclid (six books), spelling, writing, and correct oral use of the English language, translations from the French or Spanish language, and geography. A certain number, according to the vacancies, who stand highest in the competitive examination, are received for six years.

A portion of time is spent, by the boys, on their admission, in the factories and drawing office, the foundries, the smitheries, and other shops to acquire a general knowledge of the work done in them. They are instructed in the parts, construction and working of marine engines and boilers, and the practical use of the various instruments in the engine room, including the indicator. They attend regularly for a portion of the day the dockyard schools, and are examined twice a year by the Director of Naval Education; and in the final examination they must gain 2,000 marks out of the 2,650 (the aggregate of the marks assigned to each study), of which more than three-fourths must be in the properties of steam, mechanics, hydrostatics, plain trigonometry, and good conduct and industry, to obtain a first-class certificate of qualification. If his knowledge of steam-machinery, and his good conduct and skill as a workman, is certified to by the Chief Engineer, a first-class candidate is fully qualified for the appointment of assistant engineer. The most intelligent of this class are eligible for a four years' additional course in the Royal School in South Kensington, where they study seven months in the year, the other five being spent in practical application of principles in the drawing rooms and workshops of the dockyards. Thirty-two students entered this school from the Dockyard Schools in 1870–71.

The Royal School of Naval Architecture and Marine Engineering issue two grades of diplomas. To gain the lowest, that of *Associate*, the candidate must obtain a certain minimum of marks in the aggregate of all the subjects, in practical engineering; the proportions and arrangements of engines, boilers, and propellers; strength of material; heat and steam, as well as in arithmetic and mensuration, algebra, plane trigonometry, elementary mechanics and hydrostatics, and engine drawing. To obtain the second (the diploma of a *Fellow*), the candidate must produce designs and estimates for building simple and compound engines; calculate the power of engines and performance of vessels; strength of material and principles of ship-construction, &c., as well as pass a satisfactory examination in higher mathematics, physics, and natural philosophy.

TRAINING SHIPS FOR SEAMEN IN THE ROYAL NAVY.

The entrance to the Royal Navy is now limited to boys between the ages of 15 and 17, who present themselves at certain recruiting stations on board of Receiving ships stationed in the principal ports of Great Britain, and who are found on examination to be in sound health, not below a certain standard of height, weight, and circumference of chest, of good character, and with a rudimentary knowledge of reading, writing, and arithmetic. After passing satisfactorily the required examination, with the written consent of their parents and guardians they are entered and bound to Her Majesty as sailors until they arrive at the age of twenty-eight, and then sent to one of the five Training Ships at Devonport (*Impregnable and Implacable*), Portsmouth (*St. Vincent*), Falmouth (*Ganges*), and Portland (*Boscawen*).

In each Training Ship the boys are divided into two classes—the First and Second. The First class is the upper division, into which those pass who have been twelve months on board. Here they receive 7*d.* per day (instead of 6*d.* in the Second), and if they have passed a satisfactory examination in seamanship, gunnery, and school work, they wear a badge, and are called Badge Boys, and enjoy the privileges of a Petty Officer,—extra liberty on shore and exemption from dirty work, as well as increased pay.

The work on board of a Training Ship, consists of (1.) School duties, and (2.) Instruction and training in the practical work of a sea-going vessel.

(1.) The school work is conducted by the Head-master and his assistants, under the general control of the Chaplain and Naval Instructor. The boys are put into four divisions, irrespective of the classification of First and Second, which has reference to the time they have been on board. Having a knowledge of reading and writing when they enter, they are taught arithmetic and geography, and become quite expert in elementary studies. Each division is subjected to a searching examination four times a year, by the Captain, and twice a year by the Inspector of Navy Schools, who reports direct to the Admiralty.

(2.) The Training work, includes all branches of the service required of a sailor, and a familiarity with every part of the vessel and her rigging; the names and uses of the masts and yards; knotting and splicing; the use of the helm and needle; the compass; all the various niceties of rigging; the way to reef and furl; to make, shorten, and shift sails; and the meaning of the various words of command. To go through with quickness and precision all these various subjects, the boys are divided into sections, each under a regular teacher. The lessons are short, but frequent, and the repetition is continued till the right way becomes a habit. A portion of the boys are taught flags, and the various systems of signaling. All are taught swimming, and how to rescue a man overboard, before they go to sea. To perfect the boys in rowing, sailing, and managing boats, a number of different descriptions is attached to each Training Ship. A Brig is also provided which is placed under the command of a lieutenant, to cruise daily with a party of boys, who perform all the work, under an experienced sailor. Those who have been at school for six months are sent off for two or three weeks at a time to get accustomed to real sea work. After an experience of two months in a Brig, the boys return to the Training Ship for further drill as a preparation for sea service on board of naval vessels.

Boys who show an aptitude for the use of tools are formed into a special class to be trained for ship-carpentering. And to give the practical knowledge, a small ship (the *Circe*) is fitted up as a workshop, and is attached to the *Impregnable*, at Devonport.

The training of the British sailor is not limited to seamanship, but each boy is now conducted with great attention through a complete course of gunnery instruction. This course is divided into four sections.

1. The Handspike drill, and manning boats' sides.
2. Pointing, sponging and loading. Rifle drill.
3. Pointing, dismounting and mounting. Sword Exercise.
4. Independent firing; quick and broadside firing; shifting, breechings, trucks, and trigger lines, bow and quarter firing; and securing a lower deck gun.

On leaving a Training Ship about half the boys go through a course of Practical Gunnery, to enable them to aim and accustom them to firing shot and shell, on board of a ship specially fitted up for their use.

In few schools of any grade is the occupation of the pupils more incessant, but the routine is so diversified, that the lads are in high health and spirits during their entire training.

SCHOOL SHIPS FOR DESTITUTE CHILDREN IN SEAPORTS.

In 1856 the frigate *Akbar* was handed over by the Admiralty to a Board of Managers in Liverpool, and in 1858, the frigate *Venus*, to the Marine Society in London, to be fitted up and occupied by a class of boys, who were found hanging about the docks, and were fit candidates for police and reformatory treatment. In these ships successive classes of lads—in the former an average of 70, and in the latter, of 140, each year have received the ordinary elementary school instruction, and in addition, have been trained to the ordinary routine of a seaman's life. In due time a majority of them, rescued from bad influences, and lifted on to a higher plane of intelligence, have been put on board of merchant vessels, to work their way up into positions of good pay and responsibility.

In 1870 the Admiralty turned over to a Board of Management (charged by the Poor Law with providing schooling for destitute and pauper children) in the Forest Gate District, composed of three of the eastern parishes of London, a fine wooden man-of-war, the *Goliath*, of 84 guns, rendered powerless for the service, by the progress of modern naval construction. The ship was fitted up as a nautical and industrial school, at a cost trifling compared with that of a new building, site, and equipment for the same number, and, with its complement of 400 lads born to poverty and almost predestined to vice and crime, anchored off Gravesend. Fortunate in its superintendent, Captain Bourchier, of the Royal Navy, and his staff of industrial and book instruction, these lads (increased during the year to 450) have been subjected to a daily nautical drill and school course, which give great satisfaction.

From an official statement published in the London Times (Oct. 11, 1871), it appears that out of 449 boys received on board since the *Goliath* took up her station, 16 have gone into the Royal Navy, and in a few weeks 40 others will be in readiness; 13 have gone to sea in merchant ships, and more berths are promised shortly; 25 have found desirable situations on shore or been discharged to their friends. Besides the regular elementary school studies in which all engage for four hours, and seamanship which is taught to all, 115 are under instruction in the bands, of which there are four on board, in addition to a drum and fife band. There are 160 treble and second singers; and concerts, vocal and instrumental, are given by the young performers. For young musicians there is a demand in the army, and a list of 30 adepts have been sent to the Horse Guards. There is a swimming bath attached, and 185 have been taught to swim. Out of a fund raised by subscription, prizes are given, the first distribution of which is thus described:

> The prizes, of which about 100 were given away—and Captain Bourchier said he wished heartily that he had a prize for every boy, for "there was not one black sheep among them"—were awarded according to a system calculated to stimulate the better feelings as well as the intelligence of the boys. Thus, while there were prizes for seamanship, for smartness aloft, for the best sailmakers, best coxswains of boats, best tailors, shoemakers, carpenters, painters, buglers, &c., there were also prizes for the best swimmers, the best captain of messes, for the boys who kept their clothes or band instruments in the best order, one for the boy who had attended most carefully to the sick, and two for the most popular boys in the ship. The latter prizes had been awarded according to a species of informal and unconscious *plébiscite* on the part of the boys themselves. There were five "popular boys" nominated; for one of these—a small, dark, round-faced urchin—every boy in the ship voted; the next on the list had a little over 50 per cent. of the crew in his favor; and if names be any guide to nationality both these boys ought to hail from the sister island. To five of the boys silver medals were given for special good conduct, and these enjoyed the distinction of standing in the front row and having their honors fastened on by Miss Bourchier, daughter of the Captain Superintendent, the general distribution of books being made by Mr. Brushfield, chairman of the Board of Managers. As the little fellows came up to the table it was impossible not to remark what a difference existed between recent arrivals in the school and those who had been a few months or even a few weeks on board the *Goliath*. The school records show that, though commonly feeble and stunted in growth when they embark, numbers of them have since grown two and three inches in height, and as much as two inches round the chest. At Gravesend mariners know that the salt water mingles with the fresh; the process is silent, but not the less real. And in the *Goliath*, as in the tide itself, a change may be traced, working quietly but just as surely, in the *physique* and characters of the boys on board. The constraint, depression, and helplessness lurking in all pauper boys lifts and melts away by little and little. In its place come the frankness, courage, and love of adventure natural to English boys who live near the sea. Every thing on board encourages a cheerful, self-reliant tone: the music, good food, good air, alternate hours of work and play, care, and strict discipline—these are the elements in the midst of which they live. The boys make every thing for themselves. Even the neat Hussar uniform in which band No. 1 plays on the quarter-deck has been cut out and made on board. The form of punishment held in most awe is to be forbidden to row in the boats. Moreover, they one and all feel that they have a future. Taking into account the advantages, physical and educational, which the boys receive, it would not be placing too high a value upon the training in the *Goliath* to estimate it in the case of each boy at 50*l.* a year. Yet the actual charge made to other unions is 6s. 6d. a week.

The editorial notice of this enterprise concludes as follows:

> Thus, beside the regular supply of trained sailor boys who may be expected to take to the navy—we are told the punishment most dreaded on board the *Goliath* is being forbidden to row in the boats—there will be a considerable residue brought up to steady work on shore, to skilled labor and occupations which ought to secure them in after life a decent subsistence, and a position far above the slough of hopeless and helpless poverty in which they were born.

RECENT SCHOOL LEGISLATION.

I. LAW RESPECTING POPULAR SCHOOLS IN NORWAY.

(Passed May 16, 1860.)

Section 1. The object of the popular school is to aid domestic education in instilling into the youth of the country true Christian enlightenment, and to provide them with the knowledge and the skill which every member of the community ought to possess, as also, in as far as circumstances will allow, to extend further that general culture.

Section 2. The popular schools are divided into lower and higher schools.

(*a.*) The lower popular school is a district school, in which the children belonging to the district receive the instruction which the law makes obligatory, and also further instruction, which is not obligatory.

(*b.*) The higher popular school shall be common for several districts, or for a whole school community, or for several school communities, and shall provide a superior degree of instruction for the children belonging to the district union, or to the school communities.

Section 3. Each school community is divided into school districts, the limits of which shall be determined by the school commission, who in doing so, must take care that each dwelling is included in the district of the school which is within most convenient reach.

If the dwellings are situated so near to each other, that a number of at least thirty children belonging to them, who are within the school age, can conveniently attend one and the same school, one shall be opened in a building hired or erected for the purpose. Should the number of children in any one district be so great as to render it unavoidable to have them all taught by one master at the same time, they shall either be divided into sections, which shall attend school at different hours, or assistant teachers (male or female) shall be appointed.

When the distances make attendance at a fixed school difficult or impossible, the school may become movable, but in every place in which it is kept a proper school-room must be provided.

Section 5. The subjects of instruction in the district schools are:—(*a.*) Reading. (*b.*) Religion. (*c.*) Selections from the reading book, particularly such as treat of geography, history, and natural science. (*d.*) Singing. (*e.*) Writing. (*f.*) Cyphering.

When the school commission find it feasible, the boys should be taught gymnastics and military exercises. The school shall open and close every day with a prayer, and the singing af a hymn, or with one or the other.

Section 6. As a general rule, each district school shall be open during twelve weeks in each of the two divisions of the year; but the schools in which the children are divided into classes according to their skill and knowledge, shall be open only nine weeks in each half year. Changes may, however, be introduced herein, if the proper authorities think fit. Each week shall have six school days, and each school day, on an average, six school hours.

Section 7. Any time beyond that fixed in the preceding article, which the school commission, with the approval of the communal administration, may assign, for the instruction of the children of a district, whose parents or guardians desire it, shall be devoted to further instruction in the branches comprised in the district school, to which may be added, if it be deemed desirable, one or more of the subjects comprised in the higher popular school.

Care shall be taken that in fixing the time during which the children of the popular school are bound to attend, the most convenient periods of the year be selected.

MUSKETRY, AND OTHER ARMY SCHOOLS.

SCHOOL OF MUSKETRY AT HYTHE.

The first School of Musketry was established in June, 1853, and was composed of detachments from regiments in the neighborhood, viz. : a sergeant, a corporal, and eight rank and file, from the first, second, and third battalion of the Grenadier Guards, Coldstream Guards, Scots Fusileer Guards, Rifle Brigade, etc., to the number of eleven sergeants, eleven corporals, and eighty-eight rank and file. In 1855, a permanent corps of instructors of musketry was organized, and in 1861 a second school was instituted at Fleetwood, which was discontinued in 1867, as one establishment was found sufficient for training an adequate number of officers of the regular army, and a due proportion of officers and sergeants of militia and the Rifle Volunteer Corps.

In connection with the establishment at Hythe, district inspectors are appointed to superintend the general system of musketry instruction throughout the army, viz., three in Great Britain, two in Ireland, five in the colonies, and ten in India.

The instruction embraces not only the practical use of fire-arms, but the details of construction, both of the weapon and ammunition, the theory of projectiles, and the comparative value of different arms for different services.

The staff of the School of Musketry at Hythe consists of 1 Commandant and Inspector-General of Musketry Instruction; 1 Deputy Assistant Adjutant-General; 1 Chief Instructor; 2 Captain Instructors; 1 Paymaster; 1 Quartermaster and Acting Adjutant; 1 Surgeon.

In addition to the preparatory and professional schools for officers of the British Army, already described, there are other public institutions of a military character and for the military service, which will be briefly noticed.

ARMY SURGEONS.

In addition to the competitive examination of candidates for the post of Assistant Surgeon, for which a medical degree is preliminary, the successful candidates must spend four months at Netley, where the Army Medical School is now located (since 1863), in connection with the Royal Victoria Hospital (capable of receiving one thousand patients), where large numbers of invalid patients of the army are treated. Here, with every facility of study, observation, and practice, instruction is given by four professors, each with an experienced assistant, in military surgery, medicine, pathology, and hygiene, and all the specialities of the military hospital and field practice, peculiarities of climate, etc. After spending at least four months in the hospital, laboratory, museum, and lecture-rooms, the candidate is then examined for his commission as Assistant Surgeon.

VETERINARY SURGEON.

Although not exclusively for military service, all veterinary surgeons in the army must hold the diploma of the Royal Veterinary College in St. Pancras, London, or of the Veterinary School in Edinburgh.

ARMY SCHOOLS FOR SOLDIERS AND SOLDIERS' CHILDREN.

In 1811, on the recommendation of the Duke of York, then Commander-in-Chief, a royal warrant was issued, authorizing the appointment of a sergeant-schoolmaster to each batallion for young recruits and the children of soldiers, with provision for room, fuel, and light in each regimental barrack, and allowance for necessary books and stationery. In 1846, to give greater efficiency and uniformity to the schools established under the warrant of 1811, a new warrant was issued, requiring that the sergeant-schoolmaster should obtain a certificate of fitness from the military training college at Chelsea, and ordering the appointment of an inspector of army schools. In 1854, the following classification of masters was introduced: *First Class*, at 7*s.* a day and certain allowances; *Second Class*, at 5*s.* 6*d.* per day; *Third Class*, at 4*s.* per day; and *Assistants* at 2*s.* The first-class schoolmaster was a warrant officer, and ranked next to those holding a commission; the second and third class ranked next to sergeant-major, and the assistants ranked as sergeants. At this time the privileges of the regimental schools were extended to the children of discharged soldiers, pensioners, and various persons employed about the barracks. A schoolmistress was also employed for the infant division of pupils, and for teaching needle-work to the girls. In 1863, the office of superintending schoolmaster, with a relative rank of ensign, was created, and four (since increased to twelve) from among the most experienced first-class masters, were appointed to inspect and examine all army schools in their several military districts, and candidates for pupil-teachers and schoolmistresses.

According to the report of the Council of Military Education, for March, 1870, there were two hundred and fifty-nine masters employed by the army schools, and four hundred and eighty-five mistresses and assistants in the children's schools. In Great Britain there were three hundred and eighteen schools, and thirty-five thousand three hundred and seven non-commissioned officers and men on the books, nine thousand three hundred and fifty-nine boys and girls, besides 11,414 children in the infant schools.

ASYLUM FOR SOLDIERS' ORPHANS.

Prior to the establishment of the Army Schools in 1811, two large institutions for orphan children of soldiers who had fallen in battle or serving at foreign stations, had been founded and maintained at the public expense.

The Royal Hibernian Institution at Dublin, Ireland, was commenced on a sum appropriated by the Irish Parliament in 1765, and chartered in 1769. It has large buildings, with thirty-four acres of land, and provides for four hundred and ten children on an annual parliamentary grant of twelve thousand pounds for its maintenance, besides the income from a small endowment.

The Royal Military Asylum in Chelsea was begun by the Duke of York in 1801, and can now accommodate five hundred children on a public grant of twelve thousand pounds, besides a further grant of three thousand pounds for furniture and clothing from the Board of Works and the general vote of the army.

NORMAL SCHOOL FOR TEACHERS IN ARMY SCHOOLS.

In the Military Asylum at Chelsea, since 1846, there has existed a Normal School, where teachers of army schools may review their studies, or candidates for vacancies, or pupil teachers, may qualify themselves by study, observation, and practice, for appointment as schoolmasters, and when found qualified they receive certificates of the first, second, and third class, and are paid accordingly.

MILITARY SCHOOL OF MUSIC AT KNELLER HALL.

In the British Army the cost of maintaining the regimental bands falls upon the officers. In the infantry a sergeant, a corporal and nineteen privates are taken from the effective strength of each regiment to form a band. These receive their ordinary regimental pay,—the rest of the pay, and the entire salary of the band-master, if a civilian, together with the cost of the music and musical instruments, are provided out of the Band Fund, which is raised by "stoppages" from the officers on first appointment, and promotion, and by subscription. This fund is managed by a committee of officers. Owing to difficulties in retaining the men, and of finding band-masters with all the requisite qualifications, the Commander-in-Chief (Duke of Cambridge) established a Military School of Music in 1856, in concert with the Secretary of War, which was opened in Kneller Hall for the reception of pupils in March, 1857. The institution must be viewed (1) as a barrack, and (2) as a school of music. (1). As a barrack it is under the direction of the Secretary of War, and is managed as any other barrack. (2). As a school it is under the immediate direction of a military officer (who is appointed by the Commander-in-Chief), and a musical staff composed of nine permanent professors, four occasional professors, and a varying number of special assistants who are selected from the first-class students. There is also a schoolmaster who gives instruction one hour a day in general knowledge to each class, and a military chaplain. The instruments taught in Soprano (8); Alto (3); Tenor (3); Bass (6). The students are divided into four classes, each of which is divided into sections according to the instruments to be learned. Seven hours a day are devoted to obligatory study—but more are given, and a restriction prohibits all practice after 6.45 in the evening.

This course of study occupies two years, and there is a higher which comprises, beside practical instruction in playing and teaching the instruments composing the band, some general acquirements under the theory of harmony. There is also practical training in the duties of a conductor. In addition to ordinary military music, classical concert pieces, or chamber music, specially arranged for wind instruments, are performed. Cheap admissions to the operas and principal concerts of the metropolis are obtained (900 in one year), to such of the advanced students as are recommended for diligence by the professors.

Pupils are selected from the various regiments, and often selected for this special purpose. Boys specially trained for the bands are obtained from the Royal Military Asylum, Chelsea, the Hibernian Military School, Dublin, and the Metropolitan Poor-law School. Each candidate must be examined by the surgeon of the regiment, and certified to as in good health and with no tendencies to disease liable to be aggravated by playing on a band instrument.

A military band-master is now sanctioned by the Government for any regiment and battalion throughout the service, who receive regimental pay of first-class staff sergeant, and 100*l*. from the Regimental Band Fund.

The expenses of Kneller Hall as a barrack are borne by the government; as a school of music, by the regimental officers—including an original assessment of 5*l*. for supply of instruments, and the salaries to about 1,100*l*. annually.

The average number of students annually admitted is 74; the average number in attendance, 148. The total number admitted since 1857 is 592, of whom 163 were practiced musicians, 63 band-masters, 271 band-men.

MODIFICATIONS IN 1871.

In 1867 a Royal Commission was appointed "to inquire into the Present state of Military Education and into the Training of Candidates for Commissions in the Army." The Report, with the minutes of evidence and illustrated documents, was quite voluminous, and has been followed with important changes in both the system of military instruction, and in the mode of making appointments and promotions in the army, that will be noted in detail in the following chapters, which are compiled from historical notices by the Secretary of the Commission, and recent Regulations for the government of the several schools and the examinations for appointment and promotions.

The most important measure affecting the British army, after repeated discussions of the principle, in the last and former Parliaments, and particularly in the last, on a bill of the Gladstone ministry, in which the votes of the Commons in favor was overruled by the Lords, was the abolition of the whole system of purchase and sale of commissions by Royal Warrant issued July 20, 1871. This radical change was followed (October 30) by a revision of the Queen's Regulations, in which original appointments and promotions in the military service are put on a new basis. Henceforth, commissions of the first grade are to be issued to sub-lieutenants, for any vacancy occurring:

1. To successful candidates, in the order of merit as ascertained by competitive examination in general subjects.
2. To graduates of the universities who shall pass a qualifying examination.
3. To Queen's Cadets, Indian Cadets, and Pages of Honor, who have passed successfully the final examination of the Military Academy, or its equivalent.
4. To non-commissioned officers who are recommended for promotion by their commanding officers. If more candidates apply than there are vacancies to be filled, appointment is decided by competition.
5. To a lieutenant of the militia, who shall pass the professional examination required.

Sub-lieutenants are eligible to promotion only after passing a professional examination, and only after twelve months' service with a regiment, under strict discipline, with liability to be removed for physical or moral unfitness. Within three years from the date of their commissions as lieutenants, officers may submit to an examination in respect to fitness for promotion to captaincies, and any officer failing to pass within three years, must retire from the army. Lieutenants are eligible to the rank of captain at any time after two years' service in the army, having passed the examination. A captain may be made a major after two years' service in the army; and a major is at any time eligible to a lieutenant-coloncley, which means the command of a regiment.

Every promotion must now be made on the recommendation of the Commander-in-Chief, with the approval of the Secretary of State for War; and from the principles laid down in the Royal Warrant, as will be seen further on, every precaution is taken to insure a gradual advance by seniority, and a more rapid rise by meritorious service founded on intelligent and disinterested tests. By the new Warrant the Militia is brought into closer connection with the Regular Army. To the abolition of purchase, and promotion by professional preparation and service, may be added the autumn field manœuvres, inaugurated in 1871, with 30,000 men, and the localization of the Army, by assigning a corps with staff, train, men, &c., to territorial divisions of the country.

SCHOOLS AND PRACTICAL TRAINING FOR NAVAL ENGINEERS.

In addition to the higher theoretical instruction in Naval Construction, Steam, and Marine Engineering, and kindred branches, at South Kensington, and to the candidates for assistant engineers, furnished by the numerous marine engine factories, and ocean steamers, to which young men resort to acquire a practical knowledge of their duties, the Admiralty have established in the dockyard schools at Portsmouth, Devonport, and Sheerness, courses of study and practical training, and a system of test examinations, for the express purpose of securing a body of educated and skillful engineers, to meet the demands of this department of the service.

Boys between the ages of 15 and 16, can enter their names as applicants with the Superintendent of the dockyards, and if they can pass the medical examination and give evidence of good character, they are examined twice a year by the Civil Service Commissioners in Arithmetic, including fractions, square and cube roots; Algebra, including quadratic equations; Euclid (six books), spelling, writing, and correct oral use of the English language, translations from the French or Spanish language, and geography. A certain number, according to the vacancies, who stand highest in the competitive examination, are received for six years.

A portion of time is spent, by the boys, on their admission, in the factories and drawing office, the foundries, the smitheries, and other shops to acquire a general knowledge of the work done in them. They are instructed in the parts, construction and working of marine engines and boilers, and the practical use of the various instruments in the engine room, including the indicator. They attend regularly for a portion of the day the dockyard schools, and are examined twice a year by the Director of Naval Education; and in the final examination they must gain 2,000 marks out of the 2,650 (the aggregate of the marks assigned to each study), of which more than three-fourths must be in the properties of steam, mechanics, hydrostatics, plain trigonometry, and good conduct and industry, to obtain a first-class certificate of qualification. If his knowledge of steam-machinery, and his good conduct and skill as a workman, is certified to by the Chief Engineer, a first-class candidate is fully qualified for the appointment of assistant engineer. The most intelligent of this class are eligible for a four years' additional course in the Royal School in South Kensington, where they study seven months in the year, the other five being spent in practical application of principles in the drawing rooms and workshops of the dockyards. Thirty-two students entered this school from the Dockyard Schools in 1870–71.

The Royal School of Naval Architecture and Marine Engineering issue two grades of diplomas. To gain the lowest, that of *Associate*, the candidate must obtain a certain minimum of marks in the aggregate of all the subjects, in practical engineering; the proportions and arrangements of engines, boilers, and propellers; strength of material; heat and steam, as well as in arithmetic and mensuration, algebra, plane trigonometry, elementary mechanics and hydrostatics, and engine drawing. To obtain the second (the diploma of a *Fellow*), the candidate must produce designs and estimates for building simple and compound engines; calculate the power of engines and performance of vessels; strength of material and principles of ship-construction, &c., as well as pass a satisfactory examination in higher mathematics, physics, and natural philosophy.

TRAINING SHIPS FOR SEAMEN IN THE ROYAL NAVY.

The entrance to the Royal Navy is now limited to boys between the ages of 15 and 17, who present themselves at certain recruiting stations on board of Receiving ships stationed in the principal ports of Great Britain, and who are found on examination to be in sound health, not below a certain standard of height, weight, and circumference of chest, of good character, and with a rudimentary knowledge of reading, writing, and arithmetic. After passing satisfactorily the required examination, with the written consent of their parents and guardians they are entered and bound to Her Majesty as sailors until they arrive at the age of twenty-eight, and then sent to one of the five Training Ships at Devonport (*Impregnable and Implacable*), Portsmouth (*St. Vincent*), Falmouth (*Ganges*), and Portland (*Boscawen*).

In each Training Ship the boys are divided into two classes—the First and Second. The First class is the upper division, into which those pass who have been twelve months on board. Here they receive 7*d.* per day (instead of 6*d.* in the Second), and if they have passed a satisfactory examination in seamanship, gunnery, and school work, they wear a badge, and are called Badge Boys, and enjoy the privileges of a Petty Officer,—extra liberty on shore and exemption from dirty work, as well as increased pay.

The work on board of a Training Ship, consists of (1.) School duties, and (2.) Instruction and training in the practical work of a sea-going vessel.

(1.) The school work is conducted by the Head-master and his assistants, under the general control of the Chaplain and Naval Instructor. The boys are put into four divisions, irrespective of the classification of First and Second, which has reference to the time they have been on board. Having a knowledge of reading and writing when they enter, they are taught arithmetic and geography, and become quite expert in elementary studies. Each division is subjected to a searching examination four times a year, by the Captain, and twice a year by the Inspector of Navy Schools, who reports direct to the Admiralty.

(2.) The Training work, includes all branches of the service required of a sailor, and a familiarity with every part of the vessel and her rigging; the names and uses of the masts and yards; knotting and splicing; the use of the helm and needle; the compass; all the various niceties of rigging; the way to reef and furl; to make, shorten, and shift sails; and the meaning of the various words of command. To go through with quickness and precision all these various subjects, the boys are divided into sections, each under a regular teacher. The lessons are short, but frequent, and the repetition is continued till the right way becomes a habit. A portion of the boys are taught flags, and the various systems of signaling. All are taught swimming, and how to rescue a man overboard, before they go to sea. To perfect the boys in rowing, sailing, and managing boats, a number of different descriptions is attached to each Training Ship. A Brig is also provided which is placed under the command of a lieutenant, to cruise daily with a party of boys, who perform all the work, under an experienced sailor. Those who have been at school for six months are sent off for two or three weeks at a time to get accustomed to real sea work. After an experience of two months in a Brig, the boys return to the Training Ship for further drill as a preparation for sea service on board of naval vessels.

Boys who show an aptitude for the use of tools are formed into a special class to be trained for ship-carpentering. And to give the practical knowledge, a small ship (the *Circe*) is fitted up as a workshop, and is attached to the *Impregnable*, at Devonport.

The training of the British sailor is not limited to seamanship, but each boy is now conducted with great attention through a complete course of gunnery instruction. This course is divided into four sections.

1. The Handspike drill, and manning boats' sides.
2. Pointing, sponging and loading. Rifle drill.
3. Pointing, dismounting and mounting. Sword Exercise.
4. Independent firing; quick and broadside firing; shifting, breechings, trucks, and trigger lines, bow and quarter firing; and securing a lower deck gun.

On leaving a Training Ship about half the boys go through a course of Practical Gunnery, to enable them to aim and accustom them to firing shot and shell, on board of a ship specially fitted up for their use.

In few schools of any grade is the occupation of the pupils more incessant, but the routine is so diversified, that the lads are in high health and spirits during their entire training.

SCHOOL SHIPS FOR DESTITUTE CHILDREN IN SEAPORTS.

IN 1856 the frigate *Akbar* was handed over by the Admiralty to a Board of Managers in Liverpool, and in 1858, the frigate *Venus*, to the Marine Society in London, to be fitted up and occupied by a class of boys, who were found hanging about the docks, and were fit candidates for police and reformatory treatment. In these ships successive classes of lads—in the former an average of 70, and in the latter, of 140, each year have received the ordinary elementary school instruction, and in addition, have been trained to the ordinary routine of a seaman's life. In due time a majority of them, rescued from bad influences, and lifted on to a higher plane of intelligence, have been put on board of merchant vessels, to work their way up into positions of good pay and responsibility.

In 1870 the Admiralty turned over to a Board of Management (charged by the Poor Law with providing schooling for destitute and pauper children) in the Forest Gate District, composed of three of the eastern parishes of London, a fine wooden man-of-war, the *Goliath*, of 84 guns, rendered powerless for the service, by the progress of modern naval construction. The ship was fitted up as a nautical and industrial school, at a cost trifling compared with that of a new building, site, and equipment for the same number, and, with its complement of 400 lads born to poverty and almost predestined to vice and crime, anchored off Gravesend. Fortunate in its superintendent, Captain Bourchier, of the Royal Navy, and his staff of industrial and book instruction, these lads (increased during the year to 450) have been subjected to a daily nautical drill and school course, which give great satisfaction.

From an official statement published in the London Times (Oct. 11, 1871), it appears that out of 449 boys received on board since the *Goliath* took up her station, 16 have gone into the Royal Navy, and in a few weeks 40 others will be in readiness; 13 have gone to sea in merchant ships, and more berths are promised shortly; 25 have found desirable situations on shore or been discharged to their friends. Besides the regular elementary school studies in which all engage for four hours, and seamanship which is taught to all, 115 are under instruction in the bands, of which there are four on board, in addition to a drum and fife band. There are 160 treble and second singers; and concerts, vocal and instrumental, are given by the young performers. For young musicians there is a demand in the army, and a list of 30 adepts have been sent to the Horse Guards. There is a swimming bath attached, and 185 have been taught to swim. Out of a fund raised by subscription, prizes are given, the first distribution of which is thus described:

> The prizes, of which about 100 were given away—and Captain Bourchier said he wished heartily that he had a prize for every boy, for "there was not one black sheep among them"—were awarded according to a system calculated to stimulate the better feelings as well as the intelligence of the boys. Thus, while there were prizes for seamanship, for smartness aloft, for the best sailmakers, best coxswains of boats, best tailors, shoemakers, carpenters, painters, buglers, &c., there were also prizes for the best swimmers, the best captain of messes, for the boys who kept their clothes or band instruments in the best order, one for the boy who had attended most carefully to the sick, and two for the most popular boys in the ship. The latter prizes had been awarded according to a species of informal and unconscious *plébiscite* on the part of the boys themselves. There were five "popular boys" nominated; for one of these—a small, dark, round-faced urchin—every boy in the ship voted; the next on the list had a little over 50 per cent. of the crew in his favor; and if names be any guide to nationality both these boys ought to hail from the sister island. To five of the boys silver medals were given for special good conduct, and these enjoyed the distinction of standing in the front row and having their honors fastened on by Miss Bourchier, daughter of the Captain Superintendent, the general distribution of books being made by Mr. Brushfield, chairman of the Board of Managers. As the little fellows came up to the table it was impossible not to remark what a difference existed between recent arrivals in the school and those who had been a few months or even a few weeks on board the *Goliath*. The school records show that, though commonly feeble and stunted in growth when they embark, numbers of them have since grown two and three inches in height, and as much as two inches round the chest. At Gravesend mariners know that the salt water mingles with the fresh; the process is silent, but not the less real. And in the *Goliath*, as in the tide itself, a change may be traced, working quietly but just as surely, in the *physique* and characters of the boys on board. The constraint, depression, and helplessness lurking in all pauper boys lifts and melts away by little and little. In its place come the frankness, courage, and love of adventure natural to English boys who live near the sea. Every thing on board encourages a cheerful, self-reliant tone: the music, good food, good air, alternate hours of work and play, care, and strict discipline—these are the elements in the midst of which they live. The boys make every thing for themselves. Even the neat Hussar uniform in which band No. 1 plays on the quarter-deck has been cut out and made on board. The form of punishment held in most awe is to be forbidden to row in the boats. Moreover, they one and all feel that they have a future. Taking into account the advantages, physical and educational, which the boys receive, it would not be placing too high a value upon the training in the *Goliath* to estimate it in the case of each boy at 50*l.* a year. Yet the actual charge made to other unions is 6s. 6d. a week.

The editorial notice of this enterprise concludes as follows:

> Thus, beside the regular supply of trained sailor boys who may be expected to take to the navy—we are told the punishment most dreaded on board the *Goliath* is being forbidden to row in the boats—there will be a considerable residue brought up to steady work on shore, to skilled labor and occupations which ought to secure them in after life a decent subsistence, and a position far above the slough of hopeless and helpless poverty in which they were born.

RECENT SCHOOL LEGISLATION.

I. LAW RESPECTING POPULAR SCHOOLS IN NORWAY.

(Passed May 16, 1860.)

Section 1. The object of the popular school is to aid domestic education in instilling into the youth of the country true Christian enlightenment, and to provide them with the knowledge and the skill which every member of the community ought to possess, as also, in as far as circumstances will allow, to extend further that general culture.

Section 2. The popular schools are divided into lower and higher schools.

(*a*.) The lower popular school is a district school, in which the children belonging to the district receive the instruction which the law makes obligatory, and also further instruction, which is not obligatory.

(*b*.) The higher popular school shall be common for several districts, or for a whole school community, or for several school communities, and shall provide a superior degree of instruction for the children belonging to the district union, or to the school communities.

Section 3. Each school community is divided into school districts, the limits of which shall be determined by the school commission, who in doing so, must take care that each dwelling is included in the district of the school which is within most convenient reach.

If the dwellings are situated so near to each other, that a number of at least thirty children belonging to them, who are within the school age, can conveniently attend one and the same school, one shall be opened in a building hired or erected for the purpose. Should the number of children in any one district be so great as to render it unavoidable to have them all taught by one master at the same time, they shall either be divided into sections, which shall attend school at different hours, or assistant teachers (male or female) shall be appointed.

When the distances make attendance at a fixed school difficult or impossible, the school may become movable, but in every place in which it is kept a proper school-room must be provided.

Section 5. The subjects of instruction in the district schools are:—(*a*.) Reading. (*b*.) Religion. (*c*.) Selections from the reading book, particularly such as treat of geography, history, and natural science. (*d*.) Singing. (*e*.) Writing. (*f*.) Cyphering.

When the school commission find it feasible, the boys should be taught gymnastics and military exercises. The school shall open and close every day with a prayer, and the singing af a hymn, or with one or the other.

Section 6. As a general rule, each district school shall be open during twelve weeks in each of the two divisions of the year; but the schools in which the children are divided into classes according to their skill and knowledge, shall be open only nine weeks in each half year. Changes may, however, be introduced herein, if the proper authorities think fit. Each week shall have six school days, and each school day, on an average, six school hours.

Section 7. Any time beyond that fixed in the preceding article, which the school commission, with the approval of the communal administration, may assign, for the instruction of the children of a district, whose parents or guardians desire it, shall be devoted to further instruction in the branches comprised in the district school, to which may be added, if it be deemed desirable, one or more of the subjects comprised in the higher popular school.

Care shall be taken that in fixing the time during which the children of the popular school are bound to attend, the most convenient periods of the year be selected.

Section 8. The district schoolmasters may be appointed to undertake the whole of the instruction (the obligatory and the voluntary part) in one or more district schools, or merely in the one or the other division.

Section 9. If there be any children in a district who, having attained their fourteenth year, are found so deficient that they are incapable of taking part in the instruction in the school, the school commune must provide separate instruction for them, until the parish clergyman and the master, to whose school they belong, shall, after consulting together, declare that the children are fit to be admitted into the school.

The expenditure caused by this special provision of instruction, shall be refunded by the parents or guardians of the children.

Section 10. In every industrial establishment in which thirty workmen or more are regularly employed, or in every group of smaller establishments of the kind, situated so near to each other that the provisional administration (*stifts directionen*) deems it feasible for them to have a school in common, and who employ in the aggregate the number of workmen mentioned above, a special school shall be instituted for the children, which school, besides satisfying the conditions laid down in Sections 5 and 6, shall, during at least sixteen weeks in the year, impart instruction such as the voluntary instruction mentioned in Section 7, as given in the district school.

The same conditions are binding on existing manufactories and other industrial establishments, in which the number of workmen employed is not less than twenty. If children, whose parents are not employed in the establishment, can conveniently attend the school, they shall have the right to do so, provided it can be done without injury to the instruction imparted.

The provisions herein laid down shall not prevent the owners of industrial establishments from making arrangements, with the consent of the respective provincial and communal administrations for connecting the school belonging to the establishment with the general school system of the commune.

Section 11. The school commission may, with the sanction of the communal authorities, erect infant schools, under the guidance of female teachers.

Section 12. The school commission may, with the sanction of the communal authorities, institute industrial schools for the girls.

Section 13. The children in any school community in which the more complete instruction mentioned in Section 7, is not introduced, may be permitted to attend the school of another district in which this instruction is given.

Section 14. Unless when otherwise decided by the school commission, the parents or guardians shall provide the children with the requisite reading and lesson books, writing materials, slates, &c., but the school furniture and teaching apparatus shall be provided out of the school fund.

Section 15. Every district presided over by a separate authoritive body (*Formandskab*), shall, as a rule, constitute a school community with a common school fund, &c., &c.

Section 16. The school fund arises from—(*a*.) Interest on capital possessed by the school, or which may accrue to it. (*b*.) Voluntary gifts. (*c*.) Certain legal fees paid on various occasions, and granted to the schools. (*d*.) Fines paid in accordance with the provisions of the present law. (*e*.) Grants which may be made by the larger school community, or out of the public moneys.

Whatever other property the school may previously have possessed, it shall continue to enjoy.

The school commission may, with the sanction of the communal administration, determine that school money shall be paid by those children who participate in the non-obligatory instruction, and whose parents are not in indigent circumstances.

Whatever additional funds may be required to cover the expenditure of the school shall be provided by the school community according to the regulations established by the communal authorities with the sanction of the provincial authorities.

Section 17. All expenses connected with the erection and maintenance of factory and other such schools, shall be borne by the proprietors, and in the case of joint schools, by the proprietors in proportion to the number of workmen each employs. The industrial establishments to which schools are attached, shall, on the other hand, be exempted from all contributions to the schools of the commune.

Section 19. The communal administration possesses authority in all matters concerning the schools, and in consequence no expenditure which the commune, in accordance with this law, is not bound to defray, can be imposed upon it without the consent of the communal administration.

Section 20. The expenses connected with the erection of school buildings, and keeping them in repair, with the heating, lighting, &c., of the schools, and the maintenance of the schoolmasters, &c., &c., shall be defrayed out of the common school fund, unless the school commission, with the sanction of the provincial direction, determine that they shall be borne by the district.

Section 22. If the expenditure connected with the school cause a disproportionate burden to be imposed upon some one district in particular, the communal administration shall as much as possible equalize the burdens when levying rates, or by means of contributions from the common school fund.

II. HIGHER POPULAR SCHOOLS.

Section 33. The school commission should introduce higher popular schools in all places where they seem likely to answer the purpose. They may, with the sanction of the communal administration, be erected (with or without assistance from the fund of the amt*) as separate schools, or in conjunction with a district school, or with a seminary for schoolmasters. They may be erected for one parish alone, or for several parishes in common. Several districts acting together may determine to establish a higher popular school. So also several school communities or districts, each of which have established the lower division of a higher popular school, may join together to establish the higher division of the school. . . . Higher popular schools may also, on the proposal of the amt authorities, be established at the cost of the amt fund.

Section 34. If the entire course of instruction in a higher popular school be extended over more than two years, the school shall be divided into two sections, the lower of which shall comprise the instruction given in the first two years of attendance, and the latter, that of the ensuing years. The instruction in the lower division shall form a complete whole in itself, yet shall be calculated to serve as a basis for the more extended instruction in the upper division.

Section 35. If circumstances render it desirable, each division of the school may be kept in a separate locality within the district for which the school has been established.

III. LAW RESPECTING HIGHER PUBLIC SCHOOLS.—(*Law of* 1867.)

Section 1. The object of the Higher Public Schools is to extend the general instruction in the popular schools, and also to prepare pupils for the University and for the higher special schools.

Section 2. The higher public schools are (1.) Middle or Intermediate Schools; (2.) Gymnasia, which are either classical, or scientific.

Section 3. The Middle School prepares pupils for the Gymnasium, both of the classical and scientific grade, and at the same time gives a general culture to those who close their school studies with its final examination at the end of the sixth year.

Section 10. In the Middle School, besides the studies of the popular school, the German language from the first year, Natural Science and Drawing with the second year, Geometry from the third year, Latin and English from the fourth; French from the fifth year.

Section 11. If a Real class is added to the Middle School more attention is paid to geography, political economy, drawing, and book-keeping.

Section 13. Singing, gymnastics, and military exercises, are obligatory in both the Middle Schools and the Gymnasium.

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* A territorial division. Norway is, for administrative purposes, divided into Stifter, Amter, Herreder, &c.—Trans.

LAW RESPECTING PUBLIC ELEMENTARY SCHOOLS IN SWEDEN.

(Proclaimed January 29, 1859.)

[The law respecting primary popular schools in Sweden, especially in the rural districts, the compulsory attendance of children at school; the penalties incurred by disobedience; the subjects of instruction, &c., is similar to that of Norway.]

1. The object of the public elementary schools founded by the State, is partly to impart a degree of general culture superior to that which can be acquired in the popular schools, and partly to lay the foundation of the scientific instruction which is carried further in the University, and in the higher special schools.

2. All these schools shall be organized according to one plan, so that the studies and exercises shall have the same basis in all.

3. With respect to the different amount of knowledge to be imparted to the children, and the consequent number of classes to be introduced into the schools, they shall be divided into lower and higher schools.

The higher schools are those in the two upper classes of which instruction is given in all the branches comprised in the plan of elementary education, or those in the two upper classes of which instruction is only given in those branches which are comprised in practical (*real*) education.

The lower schools are those in which that instruction is imparted which forms the basis of the extended instruction in the higher schools.

4. In the higher elementary schools the pupils are divided into seven classes.

In the lower schools they are divided into five, three, or two classes.

The course of instruction in each of the four lower classes extends over one year, and in each of the three higher classes over two years; but in those schools in which there are a sufficient number of teachers for the purpose, each of the two upper classes should be divided into two sections of one year each, and in which instruction should be given separately.

7. The subjects of instruction in the first or lowest class of the elementary schools are, religion, Swedish, German, mathematics, geography, and natural science, caligraphy, and linear drawing.

8. In the second class the same subjects are taught, with the addition of narratives from Swedish history.

9. In the other classes the subjects of instruction are: religion, the Swedish, Latin, Greek, Hebrew, German, French, and English languages, natural science, history, geography, and philosophical propædeutics, which subjects shall be introduced in the order mentioned in the lesson plans A and B given hereinafter. With the instruction in the Swedish language shall be combined instruction in the language and the literatures of Norway and Denmark.

10. For the exercises in music, drawing, and gymnastics, separate rules shall prevail.

11. In the first and second classes all the pupils shall be instructed in common. But children of different religions shall, if it be desired, be exempted from participation in the religious instruction.

12. In the other classes pupils whose parents or guardians desire it, may be exempted from participation in the classical lessons, but must in that case receive, during those hours, instruction in such other subjects as may be determined by the regulations.

15. No pupil must refuse to receive instruction in music, drawing, or gymnastics, unless the head master (rector) give his special permission, after considering the reasons pleaded in excuse.

22. The number of hours of instruction weekly in the first and second classes of the elementary schools shall be thirty, in the third and up to the sixth inclusive, thirty-two, and in the seventh, thirty, for those pupils who learn the classical languages, and thirty-two for those who do not participate in this instruction.

The time of instruction must in no case exceed six hours in one day, and instruction must be given on every day in the week except Sunday. After two consecutive hours of study in the school-room, the lessons must cease for at least one hour; but three hours consecutive lessons may in some cases be permitted, provided the pupils be allowed at least two hours' leisure before and after these lessons. When the lessons follow immediately after each other, ten minutes' leisure, which shall be included in the time of the lesson, shall be allowed the pupils towards the end of each hour.

The time for instruction in music, drawing, and gymnastics, and also for prayers, is not included in the above-mentioned six hours.

24. To the pupils of the highest class the rector may once, or at the utmost twice a month, allow a whole day to be devoted to separate studies under the rector's, or some other master's superintendence.

25. The work of each day begins and ends with prayer, and with the singing of a hymn.

28. The age of admission is not below nine years, unless in exceptional cases the rector, on account of particular circumstances, deems it right to admit a younger child.

29. The knowledge required for admission is:—

a. To be able to read Swedish fluently from manuscript, as well as from a printed book.

b. Luther's small Catechism, and some parts of the Bible history.

c. To be able to write a legible hand.

d. To be able to do sums in addition and subtraction with whole numbers, and to know the multiplication table well.

Children belonging to other religious confessions than those of the State, must furnish satisfactory proofs of their religious knowledge.

38. Pupils who have remained two years in a one-year class, or three years in a two-year class, and who are still unqualified for advancement into a higher class, shall, unless illness, or some other good reason exists for their deficiency, be dismissed from the school.

42. Pupils leaving the higher elementary schools after having completed the course, receive a certificate in accordance with the result of the examination to which they are subjected.

44. At the end of each school year the teachers shall hold an examination (each in his own branch) of the pupils of all the classes, in public, and in presence of the school authorities, and of men of science, whom the latter may invite to come and lead, or witness the examinations.

The advancement into higher classes takes place after these examinations.

47. Youths who have received a similar course of instruction in private, but whose parents or guardians wish them to be examined together with the pupils who have completed the course in the higher elementary schools, shall be admitted to examination, and shall, like the regular scholars, receive certificates according to proved proficiency.

100. The rector and masters at the heads of classes must take great care that the tasks given to the pupils to execute and learn at home do not interfere with the rest and recreation so necessary for them.

[A plan of lessons for both the Classical and Scientific course is drawn up by the highest school authorities for the guidance of the teachers, in which a certain number of hours is given each week, to each study, in each class. In this plan religion receives from 2 to 6 hours; the Swedish language from 2 to 8 hours; Latin from 10 to 7, and Greek from 6 to 5, in the Classical course; German from 6 to 5; French from 3 to 5; Drawing from 3 to 2; Mathematics from 8 to 4; Natural Science, 2; and History and Geography 3 in the Classical, and 4 in the Scientific course.]

SECTIONS FROM SCHOOL LAW OF ARGOVIA, 1865.

§ 7. All teachers in the public schools are elected for six years, and must at the end of this term be confirmed in their office for another six years and so on. The confirmation is pronounced by the Council of Education.

§ 15. Teachers whose age and infirmities oblige them to retire from their office, receive an annual allowance, as long as they have no other means of subsistence.

Meritorious teachers who resign for other reasons than age or infirmity, may, if they have not other means of subsistence, receive a grant, the amount of which is determined according to their time of service and to the services performed.

§ 21. With exception of the teachers of needlework, all male and female teachers are bound to join the Hargan Association for securing pensions to school teachers.

This association receives a yearly contribution from the State, the application of which sum is determined by the Educational Council of the Government, after consultation with the association.

§ 22. For the practical improvement of the teachers of the communal schools of each district, conferences have been instituted.

These conferences are directed by a chairman elected by the members. They are held at least four times a year, and attendance is obligatory.

The female needlework teachers also assemble in district conferences, under the presiding of the head governess.

§ 23. Each district conference possesses a lending library of educational works, the purchase, use, and administration of which is managed by the members.

This library is supported by the annual subscriptions of the members of the conference, by the fines paid by them for non-attendance, and by a yearly contribution from the Educational Council.

§ 24. All the teachers in, and inspectors of the public schools in the canton, together with the chairman of the district conferences, constitute the cantonal conference.

The object of this is to promote the scientific activity of the teachers, and to discuss and bring to the knowledge of the school authorities matters relating to the schools.

This conference assembles at least once a year.

§ 39. Compulsory attendance extends eight years, from the age of seven to the end of the fifteenth year; during the first six of which the teachers are to aim at imparting a thorough knowledge of the elementary subjects of instruction, whereas the last two years are to comprise a separate course of instruction, in which the practical requirements of life are to be combined with the general subjects of education, and the differences between these requirements, as regards girls and boys, are to be duly attended to.

§ 49. In every school community there must be work schools for girls within the age of compulsory education, and these schools form a part of the communal school, and are subject to the same rules.

§ 50. Every girl is bound from the beginning of her third year at school, and till the end of her school time, to attend the work school, the work in which embraces: knitting, sewing, the repairing of old clothes, and the making of common articles of wearing apparel. The teacher is moreover strictly enjoined to see that the girls acquire habits of cleanliness, order, and economy. Fancy work must not be taught until the scholars have attained proficiency in the more ordinary kinds of work.

§ 59. Every manufacturer who employs children, and who does not send them to the ordinary communal school, is bound, either alone, or in conjunction with other manufacturers, to erect a factory school, under a properly appointed and certified male teacher, and a female teacher for needle-work, which school, all the children in the factory must attend for six months in the year, or in intervals to that extent.

§ 64. The object of the infant schools is to secure to children who have not yet attained the age fixed for compulsory attendance in school, undisturbed mental and bodily development according to the laws of nature. The principles to be followed will be laid down in the regulations of the Educational Council.

§ 67. Parents and guardians may have their children or wards educated at home or in private schools, provided in the former case they submit to the annual examination in the common school, or in the latter, the schools are subjected to a public examination, and the teachers whether in the family or private school must hold a certificate of qualification.

§ 70. An enumeration of all children within the law of attendance (7 to 15), must be made each year by the communal authority, and must furnish copies to the teacher and the school inspector; and to these lists must be added all children within the prescribed age who remove into the commune after the day of enumeration.

§ 71. A child registered as in attendance can not be absent for a day or an hour, without permission, or valid reason, which must be stated within one week after the absence.

§ 72. Every teacher must enter in the daily register every absence, and the reasons given for the same; and a list of the absences must be submitted to the Communal School committee at the regular monthly meeting, and a copy sent to the inspector.

§ 73. Absences, not accounted for within a week, shall be deemed offenses, for which the parents or guardians must be called to account by the school authorities, and punished according to the regulation, viz.: a fine for each half day of from 20 to 60 *rappen*, and for repeated negligences, by imprisonment. The fines are paid into the communal school treasury.

[Sections 107 to 138 relate to the District School, which receives pupils from the Communal School at the age of eleven years, who are found qualified by examination, and who wish to prepare for the Cantonal Schools.

Sections 139 to 149 relates to the Cantonal Schools, viz.: the Gymnasium, and the Industrial Schools; the former fits pupils for the University, or the professional schools of theology, law and medicine; and the latter, for the Federal Polytechnic School at Zurich.]

PUBLIC INSTRUCTION IN SPAIN.

INTRODUCTION.

THE KINGDOM of Spain occupies the larger portion of the great Iberian Peninsula. Its length is about 560 miles, with an average breadth of 380 miles. The coast-line on the Atlantic is 605 miles, and on the Mediterranean 712—a total of 1,307 miles. The area, including the Canary and Balearic Isles (Majorca, Minorca), comprises 143,508 English square miles, with a population in 1864 of 16,287,675. To these must be added its colonies in America, Asia, Africa, Oceanica, with a population of about 5,000,000. The country has great variety of soil, well watered, and well adapted to the cultivation of the great agricultural staples, as well as the heat-loving fruits—corn, and wine, and oil, cotton, wheat, flax, oats, coffee, sugar, cocoa, oranges,—every thing which domestic consumption and a foreign commerce could ask. Water power and water communication abound, affording every facility for manufacturing enterprise. All the elements of national prosperity seem to exist—except a stable and liberal government and a comprehensive system of national education.

An important step towards the organization of a liberal government was taken in the Constitution drawn up by a *Cortes Constituyenter*, elected by universal suffrage in January, 1869, and proclaimed June 6, 1869. Sections 35 to 37 decree: "All powers emanate from the nation. The form of government of the Spanish nation is the monarchy. The power to make laws resides in the Cortes. The king sanctions and promulgates the laws. The executive power resides in the king, who exercises it by means of his ministers. The tribunals exercise the judicial power. Questions of local interest to the population belong to the Ayuntamientos and Provincial Assemblies." There are provisions both novel and salutary in this constitution. The members, both of the Senate and the Congress, who together compose the Cortes, represent the whole nation and not exclusively the electors who nominate them, and from whom they can not receive any special mandate. The elements of an efficient system of public schools already exist, as will be seen in the following article.

HISTORIC DEVELOPMENT.

The history of systematic education in Spain begins with the dominion of the Romans, who imposed upon this country their own intellectual training so completely, that Strabo could say, that no difference could be discerned between a Roman and an Iberian youth. The principal branches then taught in the schools, were grammar, rhetoric, agriculture, and jurisprudence; while later, under the emperors, a general encyclopædiac direction was given to the course. How high a standard was reached, even in this remote province, the names of Quintilian, Martial, Lucan, the two Senecas, Columella, Silius Italicus and Florus, all Spaniards, bear witness.

During the invasion, and under the rule of the northern barbarians (the Vandals, Sueves, and Visigoths), the light of learning, kept alive now by the Christian church alone, was almost extinguished; it began slowly to re-kindle under the Gothic kings, but its development was closed by the irruption of the Moors in 711. Once firmly established, however, the invaders made more than amends by their own efforts in behalf of learning, particularly at the court of the Caliphs of Cordova, and under Abderrahman III, and Alhakim. During the reign of these princes, an efficient organization was given to instruction; scholarships were founded for the poor, special schools were opened for girls, and so great was the attendance on schools of some kind, that it was said that every person in Andalusia could read and write. A University flourished at Cordova, which stood among the first in Europe. The branches most studied were medicine, mathematics, natural science, astronomy, grammar, and law, and among the Jews, the Hebrew of the Old Scriptures.

During the struggles of the Christians and the Moors, few learned men were found outside of the cloisters; but with the triumph of the church came a revived love for letters, which was fostered by the influence of the Paris University and its graduates, by the discussions between the Nominalists and Realists, and the formation of the Dominican order. To these agencies must be added the impulse given by the University at Salamanca, and the efforts of Alphonso X. This monarch, surnamed the Wise, in the *Las Siete Partidas*, a remarkable code, compiled for the governance of Spain between the years 1256 and 1265, devotes a chapter to the establishment and conduct of great public schools (*Etudios Generales*), and granted special privileges to the University of Salamanca, to which he gave the first formal charter and endowment in 1554, and opened Latin and Arabic Schools, both in Seville and Burjos, in the same year. This monarch provided for a translation of the Scriptures into the Spanish language from the Vulgate, which implied and facilitated the existence of popular schools.

A decline came with the increase of luxury which followed the influx of the gold of the New World. Soon after this, education came under the control of the Society of Jesus, and was conducted by its members in a narrow classical, and ecclesiastical spirit, until the reign of Charles III, when the order was expelled from the kingdom. The same monarch re-organized the universities, and founded many primary schools, although as yet there existed no proper system of elementary instruction.

A re-organization was attempted by the Cortes, in a constitution framed in 1812, drawn up in the interest of the liberal or advance party; but the government gave no assistance, and in effect a plan really the reverse of that proposed, was carried out in 1824.

In 1829, under the auspices of an Association similar in its constitution and aim to the British and Foreign School Society, established at Madrid a Normal Model School for the training of teachers after the plan and methods of the Borough-road School at London, the model of the system pursued by the British Society. Such was the success of the teachers trained in this school, in different parts of the country, that in 1849, on the representation of the Minister of Instruction and Public Works, a royal decree was issued, providing for a Central Normal School at Madrid, nine Superior Normal Schools, and twenty-two Elementary Normal and Model Schools in all the provincial and principal towns, and a system of provincial and general inspection for the elementary and Normal Schools.

In 1836 the government published an ordinance regulating the middle and higher schools, which the Cortes vainly endeavored to supersede in 1838.

A comprehensive scheme was projected in the plan of studies published by Isabella II in 1845, by which normal, mining, trade, and engineering schools were inaugurated, but this plan was practically abandoned after undergoing many modifications.

In 1851 a Concordat with Rome was signed, of which the second article runs as follows: "Public instruction in the universities, colleges, seminaries, public or private schools of every description, must be, at all points, in harmony with the teachings of the Catholic Church. To this end, the bishops and spiritual heads of the parishes, shall be authorized, through their spiritual office, to watch over the morals and the education of youth, even in the public schools;" and at the same time the disabilities under which the Jesuits, as teachers, labored, were removed.

During the two years following 1854, these arrangements were reversed by the liberal party, but in 1856 there was a new Catholic re-action, which resulted in the law of Sept. 9, 1857. A yet more decided denominational tendency showed itself in the law of June 2, 1868, but this was annulled by the Revolution of the same year, the Concordat was burned in the public market place (Oct. 4), and (November 20) instruction was declared to be free, and (June 6, 1869) without cost.

In the absence, however, of a perfected system, the provisions of the law of 1857 are in force. These we will now proceed to detail, noting such modifications as have been incorporated with that law, as well as the new features which the recent political revolution has introduced. We are indebted to Prof. LeRoy for the recent statistics and legislation of the public schools.

GENERAL PROVISIONS OF PUBLIC INSTRUCTION.

All matters pertaining to public instruction are confided to the Ministry of Public Welfare (Commerce, Education, and Public Works), together with the Royal Council of Public Instruction, a Board, as constituted by act of Oct. 9, 1866, of twenty-four members, appointed by the government from among the following persons: Ministers of State, Archbishops, Bishops, Councillors of State, Directors of Public Instruction who have previously been professors in a faculty, Magistrates and Officers of the Exchequer, Members of the Royal Academy (one each of these), retired Rectors of Universities, Professors in the same, Superior Inspectors and Civil Officers of a scientific and literary character, and finally four persons of literary or scientific reputation, but without official position. Ex-officio members are the General Director of Public Instruction, the Rector of the Central University, the Attorney of the Ecclesiastical Court, and the Apostolic Vicar of Madrid.

The Central Administration is represented by the General Director of Public Instruction; the local, by the Rectors of the Universities with a Council of Advice. There is also in each provincial capital a *Junta* (Committee), having charge of the interests of the lower and middle schools, and the care of the school funds. In every commune is a local junta, with oversight of primary instruction.

Later changes and dispositions. The Royal Council of Public Instruction was dissolved by the law of Oct. 10, 1868, and the minister made alone responsible. The constitution of the provincial juntas was changed, and now consists of nine members chosen by the depu'ies (*deputaciones*); the local committee consists of from nine to fifteen members, according to the population of the locality, appointed by the corporations (*ayuntamientos*).

I. PRIMARY INSTRUCTION.

Primary Instruction is of an elementary and a higher grade. Every place, with a population of less than 500, is to have one incomplete boys' school; but such districts may unite to establish one complete; of full 500, at least one complete boys' school, and, if the population is sufficient, another for girls; of 2,000, two complete schools, one for each sex, and one of the same grade for each sex, for every 2,000 inhabitants additional. Not all of these schools, however, need be public. There must be one higher elementary school in the provincial capitals, and in every city of more than 10,000 population; the municipal authorities may open schools of this grade where desired, unless their establishment should prejudice those of the lower grade.

Schools for little children (*escuelas de los parvulos, salles d'asile*) must be opened in every city with 10,000 population, as well as Sunday and Evening schools for adults. Every University city must have one institution for the deaf, and another for the blind.

Private Schools. Every person, of twenty years of age, with a teacher's diploma, can open a private, primary school, subject to regulations to be detailed hereafter. Legal associations or corporations enjoy the same privileges, after obtaining permission from the government, with or without giving bonds. *Instruction at home* is allowed by law.

Inspection.

Besides the Royal Council already mentioned, there is appointed for every province one inspector, sometimes two, and in Madrid three. These must be graduates of the Central Normal School, and must have had experience as teachers. They are appointed by the head of the Department, after conference with the Royal Council. They inspect the schools of all descriptions, except the normal schools.

Besides the provincial inspectors there are three General Inspectors of primary instruction for the whole kingdom, appointed from the provincial inspectors of the first class, the directors of the Normal Schools of the same class, or from the teachers of the higher course in the Central Normal School. They must be Bachelors of Arts, and must have had five years experience in one of the above positions. They inspect the Primary Normal Schools, and have supervision of the transactions of the provincial inspectors.

In addition to these special inspectors, the bishops and other prelates are charged with the oversight of the school-books, the studies, and the religious instruction of the pupils.

Studies.

In the elementary primary schools are taught religion, Scripture history, reading, writing, the mother tongue, orthography, arithmetic, with weights, measures and coins, and such details of commerce, trade, and agriculture, as local circumstances may require. In the higher primary schools the same studies are carried farther, with the addition of (1) elementary geometry, linear drawing, the art of measuring land; (2) geography and history, especially of Spain; (3) general notions of physics, chemistry, and natural history, with their practical applications. In the girls' schools the same studies are pursued, with the exception of agriculture and the branches embraced under 1 and 2, which are replaced by lessons in housekeeping, female handiwork, and drawing in connection with the latter. The Evening and Sunday Schools for adults carry the elementary studies higher, and give instruction in linear and ornamental drawing, with special reference to the trades. The courses in the Normal (or model) Schools correspond to the requirements made for obtaining a teacher's diploma.

The school is continued throughout the year, without intermission, although there are fewer recitations during the summer, with two daily sessions of three hours each, or in some places only one of four hours. The schools for little children are held for three hours in the morning, and in afternoon. The evening schools for adults are held during one hour and a half in the evening, from October to May.

The school age is from six to nine years in the Primary School; from two to seven for the little children in the Infant Asylums.

School Books and Methods.

The text-books are chosen by the government, which issues a list every three years. In the religious instruction a catechism approved by the authorities of the diocese is used. Grammar and orthography are taught according to the method of the Spanish Academy. Four methods of instruction are pursued, the individual, simultaneous, mutual, and mixed. The intuitional and the catechetical method are universally commended by the best educators, but are not yet generally adopted. Much stress is laid upon memorizing, and upon practical exercises under the guidance of the teacher. Many attempts are now made to diffuse a knowledge of the best foreign methods, and the soundest theories of pedagogy. Examinations are held annually in both public and private establishments.

Discipline.

Attendance is obligatory. Cases of truancy are reported at first to the parents, and afterwards, if necessary, to the local junta. Severe bodily punishments, or those calculated to degrade the pupil, are very strictly forbidden. Diplomas, books, instruments connected with studies or their practical application, are distributed as prizes.

TEACHERS.

The teachers in the public schools receive their appointments from different sources, according to their locality and salaries. Those places paying less than 4000 reals for males, and 3000 for females, are filled by the rector of the university of the district in which they are situated; those paying more than this, and less than 6000, by the Superior Board of Studies; those paying still higher salaries by the King. The teachers must be Spaniards, 20 years of age, of good character, and with a professional diploma for teaching. But for teachers in the schools for little children, nothing more is necessary than the recommendation of the governor, and the junta of the province. Teachers may engage in any other occupation that does not impair their efficiency in the school. They cannot be discharged during good conduct.

Candidates for the position of teacher in the elementary primary schools are examined in the following branches: the catechism, religious history, reading, calligraphy, Spanish grammar and composition, arithmetic, the elements of geometry, of linear drawing and of land measuring, geography, elements of the history of Spain, notions of agriculture, principles of pedagogy, methods and practice of instruction. In addition, for the higher primary schools, algebra and natural history, and some comprehension of ordinary natural phenomena are required.

Female teachers are examined in the branches taught in the female schools, and two years of practice in a model school is accepted as a substitute for attendance on the Normal Schools. The pastor of the commune can also teach in a primary school. The incomplete schools are taught by teacher-adjuncts; those open for a short period of time only, by candidates for teacherships, subject to the direction of the teachers of the nearest complete establishment. Advancement is earned by age and services. The modern languages and music may be taught by foreigners.

The teachers in the Normal Schools are subjected to an examination in all the branches pursued in the primary schools, together with rhetoric and poetry. They are also required to have completed a course of pedagogy relating to the primary schools although eight years' experience in a higher primary school dispenses with this requirement. The fifth vacant place in the provincial normal schools is reserved for those teachers in the public schools who have had ten years of successful service, and is to be obtained by competitive examination; all others by competitive trial or actual experience.

Teachers for the highest courses of the Central Normal School must have the diploma of Bachelor of Arts from a University.

Financial.

The expenses of the primary schools, including those connected with the Normal School, are borne by the communes, assisted, in case of need, by the central government. The Normal Schools are supported by the provinces, the state contributing in part to the support of the Central Normal School at Madrid.

The salaries of male teachers in the elementary primary schools are from 2500 to 9000 reals, 1000 reals more being paid, in each case, in the schools of the higher class. Female teachers receive two-thirds of this amount. The sums paid for tuition are added to these salaries.

Pensions are paid to teachers after the sixtieth year of age, two-fifths of the salary being paid after twenty years of service, three-fifths after twenty-five, and four-fifths after thirty-five years. Widows and orphans receive one-quarter of the average salary.

In the Normal Schools the salaries range from 7000 to 12,000 reals, the last sum being paid to the Directors of the Provincial establishments. In the Central Normal School salaries range as high as 15,000 reals.

The members of the Royal Council serve without pay. The provincial inspectors receive from 8000 reals to 10,000, according to the size and population of the province in which they serve. The salary of the general inspectors reaches 18,000 reals. Traveling expenses are paid.

Many important changes, as yet of a provisional character, have been introduced into the system of primary instruction, by ordinances promulgated in 1868 and 1869—such as full liberty of instruction to parents and teachers, any citizen of Spain being authorized to open a school; the appointment of all teachers in higher schools by *concour;* the abrogation of pay in certain schools, and under certain conditions. By an ordinance of 1868, the term of study for the diploma of teacher, is fixed for teachers of the first grade at two years; of the second degree, at three; and of the Normal Schools, at four.

Oct. 9, 1866, courses of religious and moral subjects were added to the normal school course, with practical exercises in various branches there taught. There is to be one normal school for each sex in every province (Dec. 9, 1868). The revolution left to the teachers the choice of methods and the selection of books. Pupils can enter school at any age (Nov. 10, 1868). Since the revolution most private schools in the larger cities have fallen into the hands of educational corporations.

III. SECONDARY INSTRUCTION.

The establishments of secondary instruction have borne the name of Institutes since 1845. They were divided into three classes, by the law of 1857, according to the population of their localities, that at Madrid being of the first class, those of the provincial capitals and the university cities of the second, and all the rest of the third. There are provincial institutes, one in each province, two in Madrid, and local institutes, which absorb the previously existing trade-schools, to be opened, as needed, permission being given by the Central Board to the municipal authorities. Their courses differ, as to the predominance of linguistic and scientific subjects, as will be described hereafter.

Connected with most of the institutes are *colegios* or boarding houses; and private *colegios* can be opened, under certain restrictions, by Spaniards of good character, 25 years of age, who hold the degree of licentiate or its equivalent, from a university.

Institutions of the secondary grade are under the control of the rectors of the university districts, or the professors representing them, who receive from the directors monthly financial reports. If there is no university near, reports are made to the ministry. The director is the head of the institute. He is assisted by a secretary, who is nominated by himself to the rector of the university, from among the teachers of the institute.

The course of instruction includes two departments, of general and of applied studies; only a part of the former are in the municipal institutes, while in both the local and the provincial institutes such applied branches only are taught as meet local industrial demands. The general branches of study are, religion and church history, morals, reading, writing, universal and Spanish history, mathematics, physics, chemistry, natural history, the modern languages, Spanish and Latin grammar and composition, elementary Greek, logic, psychology, and drawing. The applied studies are linear and figure drawing, mercantile arithmetic, and in general all such branches as have a practical application in the arts and trades, for which no other preparation is needed than such as can be obtained in the primary schools. The general course prepares for the degree of bachelor of arts, the applied course for the title of *perito* or skilled merchant, mechanic, chemist, land measurer, and land valuer. The arrangement of the course has undergone so many changes and is still unsettled, that we will only remark that the general course is divided at first into two periods of two and four years, and the applied course, into one period of three.

Teachers in the general course must be bachelors of arts, and twenty-four years of age, and in the applied course they must hold the same scholastic rank, or a higher, according to the special regulations for each branch. No diploma is required of teachers of music and drawing.

The teachers in the institutes of the third class receive respectively 8000, 10,000, and 12,000 reals per annum, and the examination fees. The directors receive 4000 reals additional, double examination fees, and free lodging in the institution. Salaries are regularly increased. Pensions are provided for as in the primary schools. Half of the proceeds of the *colegios* are devoted to the support of the institutes, with which they are connected, and half to stipendiats (poor and deserving students).

The Revolution of 1868 made important changes in the law of 1857, treating secondary instruction as something complete in itself, not as a preparation for a higher course of study, each province being left to regulate its own institutes in this regard, a model school of the secondary class having been established at Madrid. Students preparing for the faculties of mathematics, the natural sciences, medicine and pharmacy, are no longer obliged to study Latin, but may still obtain the baccalaureate.

The following is the scheme established in the model school at Madrid: There is no longer question of school-year or courses, nothing but results on open examination are demanded.

Those intending to obtain the degree of B.A. previous to entering the faculties of philosophy and the arts, must prepare themselves in the following branches:

	Studies.	*Courses.*	*Hours per week.*
1.	Latin and Spanish Grammar,	2	6 (12)
2.	Elements of rhetoric and poetry,	1	6
3.	" geography,	1	3
4.	" universal history,	1	3
5.	" Spanish history,	1	3
6.	Arithmetic and algebra,	1	6
7.	Geometry and plane trigonometry,	1	6
8.	Elements of physics and chemistry,	1	6
9.	Elements of natural history,	1	3
10.	Psychology, logic, and moral philosophy,	1	6
11.	Physiology and hygiene,	1	3

It will be observed that Greek is not required. Those intending to obtain the degree of B. A. previous to entering the other faculties, must prepare themselves in the following branches:

1.	Castilian grammar,	6 hours per week.
2.	Geography,	3 "
3.	Arithmetic and algebra,	6 "
4.	History of the Old World,	3 "
5.	Geometry and trigonometry,	6 "
6.	Notions of physiology and hygiene,	3 "

7. History of Spain,	6 hours per week.
8. Physics,	6 "
9. Anthropology,	3 "
10. Chemistry,	3 "
11. Cosmology,	3 "
12. Logic,	3 "
13. History of aesthetics, and of Spanish art,	3 "
14. Biology and ethics,	3 "
15. Literary History,	6 "
16. Spanish civil law,	3 "
17. Spanish administrative law, and criminal code,	3 "
18. Agriculture, trade-industry, and commerce,	3 "

By an order of Dec. 26, 1868, any citizen of Spain can open courses similar to these in the institutes, provided an efficient discipline is observed; and his pupils can demand a special examination. The instruments and apparatus of the institute can be loaned to his use.

Secondary Technical Schools.

To this degree of instruction, belong the following:

a. Veterinary Schools at Madrid, Cordova, Leon, and Saragossa, each with a four years' course.

First year. General anatomy, and natural history of all the domestic animals; exterior of the horse, &c.

Second year. Physiology; hygiene.

Third year. General and special pathology; materia medica; art of prescribing; therapeutics, sanitary police; medical clinic.

Fourth year. Surgical pathology; operations and bandaging; commercial veterinary law; medical veterinary jurisprudence; art of forging horse shoes and shoeing; surgical clinic; critical history of the various branches.

There is also a *fifth year* for veterinary surgeons of the first-class, with the following studies. Physics, chemistry, and natural history applied to the various departments of the veterinary art; agriculture, zoötechny.

Two years study suffice for the special examination of the subordinate and assistant veterinary surgeons, the castrators and horse shoers.

b. Commercial Schools. For the diploma of the Trade Institute at Madrid, the following branches are required: Mercantile arithmetic and algebra, general knowledge of weights, measures, and coinage systems, book-keeping for wholesale and retail establishments, manufactories, public and private works; calculations applied to all varieties of business, practical conduct of accounts; industrial and mercantile geography and statistics; political economy; mercantile and trade law; French and English.

To obtain the title of teacher in commerce, one year's study of the following branches is required: Elements of international mercantile law; public and private banking of the most important nations; theoretical and practical acquaintance with the principal objects of merchandise.

c. Navigation Schools. There are navigation schools for pupils at Barcelona, Bilbao, Cadiz, Carthagena, Corunna, Gijon, Malaga, San Sebastian, and Santander, and Santa Cruz at the Teneriffes; and for ship-builders at Barcelona, Cadiz, Corunna, and Santander.

The course includes arithmetic, algebra, geometry, trigonometry, physical and political geography, experimental physics, cosmography, the science of steering and naval manœuvres, topographical, geographical, and hydrographical linear drawing, descriptive geometry, with application to ship-building, elements of applied mechanics, strength of materials, naval architecture and theory of construction. It is intended to organize two independent courses; one for pilots, and the other for ship-builders.

d. Building and land-measuring Schools. Candidates for admission must have mastered arithmetic, algebra to equations, of the second degree, inclusive, elements of geometry and plane trigonometry, linear drawing, including the different orders of architecture. After an examination in these branches comes, preparatory to an examination for builder and land measurer, a two year's course in topography, descriptive geometry, and its applications; mechanics applied to building; theory, use, and treatment of materials; stone cutting; construction in wood and iron.

To become master of works (*maestro de obras*) the student must study plans of country dwelling houses, and similar constructions, and also the laws relating to building.

e. Normal Schools for primary instruction. These schools, although part of the primary system, rank in this class of schools.

Teachers in the professional schools must be twenty-five years of age, and have the degree of licentiate in the faculty, including their department, or an equivalent professional title.

Their salary reaches from 10,000 to 14,000 reals, with the examination fees, and is increased regularly. In regard to inspection, government, and accounts, they are subject to the same rules as the Institutes.

III. SUPERIOR INSTRUCTION.

Spain possesses ten universities, viz: at Madrid, Barcelona, Granada, Oviedo, Salamanca, Santiago, Seville, Valencia, Valladolid, and Saragossa.

There are five faculties: 1, philosophy and literature; 2, exact sciences, mathematical, physical, and natural sciences; 3, pharmacy; 4, medicine; 5, law.

Madrid possesses all five faculties, and in connection with the second a higher school for mathematics, physics, and chemistry.

The philosophical faculty has been (June 18, 1867) suppressed at Oviedo, Santiago, Valencia, and Valladolid.

The faculty of exact sciences has been (June 18, 1867) reduced to the Baccalaureate requirements at Granada, Seville, and Valencia, and to the licentiates at Barcelona.

The faculty of law exists in all.

The faculty of pharmacy exists at Barcelona, Granada, and Santiago; that of medicine at Barcelona, Granda, Santiago, Seville, Valencia, and Valladolid.

The faculty of theology was suppressed as part of the public University in Oct. 25, 1868.

Three degrees are given: the Baccalaureate, the Licentiate, and that of Doctor. By the law of 1857, the last could be conferred at Madrid alone, but since 1868, it can now be given in all the universities.

The universities are under the government of a rector, now (1868) appointed from among the professors by the government, a vice-rector, who fills the place of the rector when absent, and a general secretary. The rector, at Madrid, has a salary of 40,000 reals, and elsewhere, of 30,000; the secretary a salary of 12,000, gradually raised to from 20,000 to 24,000. In every capital of a university district there is a University Council, with certain judicial powers over teachers and pupils, under the presidency of the rector, and consisting of the deans of the faculties, and the directors of the higher schools, the trade schools, and the special schools.

Higher Special Schools. The higher special schools have the same relation to the universities as the professional or special schools to the institutes. They are, 1, the Madrid Institution for training engineers of roads, bridges, canals, and forts, and mines; 2, the school of agricultural engineering; 3, the diplomatic school at Madrid; 4, the schools for notaries at Madrid, Barcelona, Granada, Oviedo, and Valladolid; 5, the industrial school at Madrid, and the Barcelona High School for industrial engineers; 6, the art schools at Madrid, especially the High School of painting, sculpture and engraving, the High School of architecture (and also of machinery and surveying), and the conservatory of music and declamation. There are 15 provincial schools of the fine arts.

The total number of teachers in the colleges and institutes, reached, in 1859, was 757.

The military special schools are under the Ministries of Land and Naval Warfare. With the exception of the schools of painting and sculpture, the professors must have the degree of doctor, or its equivalent in their several departments.

Church Seminaries. There are 59 of these, established according to the prescriptions of the Council of Trent.

Societies. There are a number of literary or scientific societies, called academies, athenæums, &c. Particularly deserving of mention are the economical organizations called *Amigos del pais*, which maintain chairs of agriculture, trade, and industry, political economy, physics, mathematics, popular astronomy, literature and art, with a few courses on primary instruction. They are divided into special sections, like the athenæums.

Higher instruction for girls. Secondary and superior instruction for girls is obtained in the cloister schools.

Education in foreign countries. An education obtained in a foreign country is recognized in Spain, so far as it is in harmony with the legal plan there pursued.

IV. STATISTICS.

I. PRIMARY INSTRUCTION.

1. *Schools and Attendance.*—	Public Schools,				20,198
	Private "				4,155
Higher Primary Schools,	Public,	Boys	242,	Girls	14
" "	Private,	"	51,	"	7
Elementary "	Public,	"	6,217,	"	4,471
" "	Private,	"	934,	"	1,212
Incomplete "	Public,	"	5,241,	"	848
" "	Private,	"	369,	"	530
Winter Primary Schools,	Public,	"	187,	"	72
" "	Private,	"	349,	"	0
Mixed "	Public,	"	2,149		
" "	Private,	"	396		
Schools for Little Children,	Public,	"	125		
" "	Private,	"	95		
" Adults,	Public,	"	632		
" "	Private,	"	212		
Primary Schools of all classes,				24,353	
Ratio of schools to the population,				1:147	

	PUBLIC.		PRIVATE.	
Pupils attending the Public Schools.—	*Boys.*	*Girls.*	*Boys.*	*Girls.*
Higher Primary Schools,	22,049	1,149	3,288	300
Elementary, Complete,	451,803	295,835	49,475	52,417
" Incomplete,	162,866	45,004	6,992	12,509
" Winter Schools,	5,606	1,702	3,467	
Mixed Schools,	51,065	26,775	8,865	2,844
Schools for Little Children,	12,907	2,135	2,884	1,397
Primary Schools for Adults,	23,199	64	5,427	259
	729,495	372,664	81,198	69,726
Totals, Public and Private,	1,102,159		150,924	
Total, Boys and Girls,	1,253,083			

	PUBLIC.		PRIVATE.	
2 *Ages.*—	*Boys.*	*Girls.*	*Boys.*	*Girls.*
Pupils under 6,	138,895	75,593	17,980	16,703
" between 6 and 9,	351,039	183,753	33,248	31,094
" above 9,	239,561	112,788	29,170	21,929
Total,	729,495	372,034	80,398	69,726

3 *Teachers.* *Public Schools.* 13,882 males, and 4,682 females, comprising

1. 106 teachers with diplomas for normal instruction.
2. 1,141 " certificates of examination for the higher primary instruction.
3. 6,222 teachers with certificates for inferior primary instruction.
4. 6,413 " without certificates.
5. 196 female teachers of the higher grade.
6. 4,052 " " lower "
7. 614 " with no certificates.

18,564 teachers of both sexes in the public primary schools.

Private Schools. 1,592 males, and 1,710 females, comprising

1. 23 teachers with diplomas for normal instruction.
2. 159 " certificates for the higher primary schools.
3. 870 " " lower "
4. 540 teachers without certificates.
5. 68 female teachers of the higher grade.
6. 1,247 " " lower "
7. 395 " without certificates.

3,302 teachers of both sexes in the private primary schools.

4. *Expenses of Primary Schools.*—The total outlay in 1860, was 65,715,389 reals, of which 41,681,536 reals was paid in salaries, and 204,102 in pensions.

To meet part of this expense, 5,702,219 reals were paid by the families of the pupils, as school money, and 1,466,632 by charitable foundations.

5. *Official estimate of school accommodations and methods.*

One-third of the girls' schools, and two-thirds of the boys' were held in apartments belonging to the communes; the rest in hired tenements, the majority being in wretched condition.

Out of the 24,353 primary schools, 15,019 were, in 1860, officially reported as defective, and instructed as follows:

	PUBLIC.		PRIVATE.		
	Boys.	*Girls.*	*Boys.*	*Girls.*	*Totals.*
Individual method,	4,467	751	1,068	527	6,813
Simultaneous method,	4,460	1,686	694	596	7,348
Mutual "	218	102	23	5	348
Mixed "	5,648	2,886	621	621	9,776
Totals,	14,793	5,425	2,406	1,749	24,353

II. SECONDARY AND SPECIAL INSTRUCTION.

In 1861 there were institutes or public colleges in 57 cities, with an attendance of 21,478 pupils, as follows:

	General Branches.	*Special Branches.*
Institutes,	12,427	1,711
Schools and Colleges,	3,966	241
Taught at home,	3,130	3
	19,523	1,955

The attendance on the professional secondary schools, which has been rapidly increasing in late years, was as follows in 1860–1:

Four Veterinary Schools,	909	
Two Trades Schools,	179	
Nine Navigation Schools,	587	
Four Mining Schools,	223	
Four Normal Schools, males,	2,794	
" " females,	688	
Total,		5,380

The following was the attendance of other special schools in 1860–1:

Agricultural Schools,	78	
Industrial Engineering Schools,	404	
Schools of the Fine Arts,	3,536	
Schools of Diplomacy,	61	
Schools for Notaries,	92	
Conservatory for Music and Declamation,	501	
Total,		4,672

School for Civil Engineers and Mining,	60	
" Engineers of Roads, Canals and Ports,	167	
" Wardens (*Con'remaîtres des mines*),	25	
" Builders in public works,	101	
Total,		353

III. SUPERIOR INSTRUCTION.

There are ten universities, with an attendance (1860–1) as follows:

In the 10	Faculties of	philosophy and literature,	1,065
" 10	"	exact sciences,	1,132
" 4	"	pharmacy,	514
" 7	"	medicine,	1,626
" 10	"	civil and canon law,	3,463
	"	administrative law,	506
	"	theology (now abolished),	305
		Total,	8,611

There are seven special schools for the military service, viz: One College for Infantry Cadets, with 510 students; one College for Cavalry, with 108 students.

The School for Artillery had, during the years from 1852 to 1861, 459 pupils. The regimental schools of the same corps numbered 1,639 pupils.

The Marine Schools numbered 157; the Academy of the Staff of the Fleet, 18; the School of *Condestables*, 202; the Special School of Marine Engineering, 16; and 100 pupils on board the school steamer.

The military schools are less attended by pupils of the middle class than formerly, and it is difficult to fill the quota in the marine schools.

The 59 Church Seminaries numbered 1859–60, 21,170 pupils, of whom 670 enjoyed a whole free place, 235 a half.

IV. ACADEMIES, GALLERIES, SOCIETIES.

There were, in 1861, 71 literary associations, with 12,830 members, and 36 libraries, with 30,520 books (of which 1,506 are MSS). Four of these societies were private; 109 courses were given on different subjects.

There were 32 of the associations called *amigos del pais*, with 4,478 members. In Granada and Madrid ladies are admitted to these societies.

Among the institutions to advance science and the arts, and literary culture generally, may be specified:

1. Royal Academy of Spain, founded in 1714, after the model of the Academia della Crusca in Florence (1582), to improve and purify the Spanish language; Royal Academy of Spanish History, founded in 1739; Academy of History and Geography, at Valladolid, and the Literary Academy at Seville, both founded in 1753.

2. Royal Gallery of Paintings, at Madrid, founded in 1512; among its 2,000 paintings, are 62 by Velasquez; 46 by Murillo; 53 by Reubens; 22 by Van Dyke; 43 by Titian; 10 by Raffaelle, and excellent specimens of other schools and artists.

3. National Library, with over 200,000 volumes; Scientific Collections of the Academy de san Fernando; Conservatory of the Arts, etc.

We give on the next page a summary of the Educational Statistics of Spain, gathered from other sources.

School Statistics—1865.

I. ELEMENTARY SCHOOLS.—These are classified into Primary for very young children, and Superior for the older, with other schools having both older and younger pupils. Of those of a public character there were 18,250, of which 109 were for infants, and 272 for adults—having an aggregate attendance of 912,195 pupils. There were besides 3,800 private schools of an elementary character with 134,383 pupils, making an aggregate of 22,060 schools, and 1,251,653 pupils, or one to every 13 of the population. The census shows a large number of adults not reached by any school, public or private.

II. SECONDARY SCHOOLS.—These embrace the following institutions:—Fifty-eight public colleges, with 10,525 pupils; 42 private colleges with 3,241 pupils, and a large number of boarding institutions under the charge of ecclesiastics, with 22,000 pupils. There are also belonging to this class numerous colleges, which are supported by the municipalities, every large town and village being bound, in proportion to its population, to maintain one or more of these schools for public instruction.

III. SUPERIOR INSTRUCTION.—There are 10 Universities, each with a Faculty of Science, Philosophy and Law; 6, Theology; 7, Medicine, and 4, Pharmacy—as follows:—

Ten of Sciences.—Barcelona, Granada, Madrid, Oviedo, Salamanca, Santiago Seville, Valencia, Valladolid, Zaragossa—46 professors, 127 students. *Ten of Philosophy and Literature.*—51 professors, 191 students. *Ten of Law.*—80 professors, 3,742 students. *Six of Theology.*—Madrid, Oviedo, Salamanca, Santiago, Seville, Zaragossa—14 professors, 326 students. *Seven of Medicine.*—Barcelona, Granada, Madrid, Santiago, Seville, Valencia, Valladolid—73 professors, 1,155 students. *Four Pharmacy.*—Barcelona, Granada, Madrid, Santiago—11 professors, 563 students. *Total*, 275 professors, 6,104 students.

IV. SCHOOLS OF SPECIAL INSTRUCTION.—

Commerce, 9, with 27 professors and 553 scholars;
Navigation, 14, with 40 professors and 586 scholars;
Farm Superintendence and Hand-Surveying, 5, with 20 professors and 402 scholars;
Veterinary, 4, with 15 professors and 1,078 scholars;
Civil Engineers, 1, with 10 professors and 115 scholars;
Mines, 1, with 8 professors and 34 scholars;
Forestry, 1, with 4 professors and 12 scholars;
Architecture, 1, with 7 professors and 23 scholars;
Industrial Schools, 6, with 54 professors and 1,806 scholars;
Diplomacy, 1, with 6 professors and 43 scholars;
Notarial Schools, 10, with 471 scholars;
Painting, 7, with 20 professors and 2,271 scholars;
Sculpture, 3, with 7 professors and 114 scholars;
Engraving, 3, with 3 professors and 14 scholars;
Music and Declamation, 1, with 37 professors and 531 scholars.

According to the statement of an article by Prof. Le Roy in the Encyclopediae Pedagogic, on the school system of Spain, there were in 1860 8,611 students in the different universities; 24,353 Elementary schools, of which 20,198 were public.

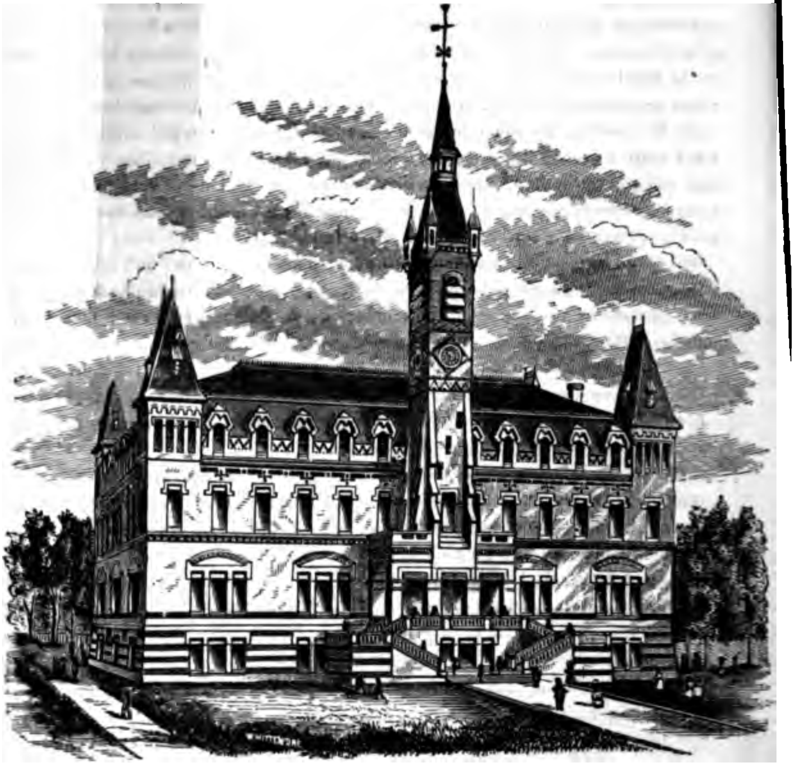
WORCESTER CLASSICAL AND ENGLISH HIGH SCHOOL.

THE building, erected in 1870–71, by the city of Worcester for the accommodation of the Public High School at a cost of $170,000, after designs of Gambriel and Richardson, Architects of New York, will accommodate 500 pupils, and contains nine school-rooms, each about thirty feet square, three of which are on the principal floor, and six in the second story. The first story also contains a large room for the library, and a lecture-room connected with which on one side is a chemical laboratory fitted up with all the appliances for the practical study of chemistry, and on the other a room for philosophical apparatus. At the right of the main entrance is a room for the principal, which communicates with the several school-rooms, by bells and speaking tubes. In addition to the school-rooms mentioned, the second story contains private rooms for the teachers, and two recitation rooms. The third story is occupied by the large hall, seventy-six feet long by sixty-two feet wide, four connecting rooms at the corners of the building, arranged to be used as a means of enlarging the hall, or for other purposes as exigencies may require. The wide halls extending lengthwise of the building, with commodious stairways at each end, form a main characteristic in the first and second stories. The entrances for the scholars are in the basement; that for girls at the north end, and that for boys at the south end, and they communicate with rooms for wardrobes, &c. The middle part of the basement is devoted to a gymnasium. The building is finished with varnished pine throughout.

The exterior walls are of pressed brick with Nova Scotia stone trimmings, and black bricks are introduced to a considerable extent as a feature of decoration. A handsome double stairway of granite, brick and freestone, leads to the main entrance, and above this rises a slender, lofty tower of exquisite grace, arranged for clock, bell, and observatory.

A very fine toned bell, manufactured by Meneely and Kimberly, bell founders, of Troy, N. Y., has been placed in the tower by the liberality of a citizen (William Dickinson), at an expense of $1,000. A large clock, which strikes the hours, from the Manufactory of Howard & Co., Boston, has also been placed in it; this, with twelve smaller ones in as many different rooms, costing $1,000, are the gift of another citizen (Hon. Edward Earle). These small clocks are operated by a battery connected with the large clock; thus uniformity of time will be secured throughout the building. One of Chickering's grand pianos, costing $1,200, is the munificent gift of the Hon. Stephen Salisbury.

The arches above the windows on the first floor, the ornamental work about the eaves, and around the dial on the tower, and near the slating of the tower and of the corner pinnacles, are of black brick, interspersed with brick of the natural color. A water-table of stone marks the line of the first floor; and a corresponding string course connects the window sills of the second story; beneath the latter there is a line of red brick and black brick in alternate pairs, placed cornerwise, after a manner technically called *herring bone.* The same style of ornamentation is employed in the balustrades around the front entrance and the balcony at the base of the tower. Variety is also given to the slating upon the roof and the slats to the openings in the bell-tower, by the introduc-



WORCESTER CITY HIGH SCHOOL.

1871.

tion of red with the black slate. The dial is composed of white tiles, laid in mortar with the brick. All the stone-work, except the above named belts, is flush with the surface of the brick walls, the ornamented work being undercut. From the roof an excellent view of the city can be obtained; and from the opening in the tower almost every building in the city can be seen.

There is an entrance to the basement beneath the portico in front. From this portico beneath the tower, with its massive square columns and its groined arches above, three heavy oak doors open into the main hall which is continuous with the spacious passage twenty feet in width extending the entire length of the building. The ceiling at the intersection of these halls, and in the hall on the third floor, is paneled; and appropriate cornices adorn the halls and the rooms on the first and second floors. The arrangement of rooms, their dimensions, &c., are plainly exhibited in the preceding plans. Each wardrobe is provided with rows of stalls, with passages between, by which the capacity of each room is multiplied. The brick partition walls which separate the several rooms, are supported above the play-room by heavy iron girders, resting upon brick piers and four iron columns in the center.

The philosophical apparatus room is provided with a large case and shelves, a broad table, drawers and cupboards. The lecture-room contains a table fitted up in the most approved style for chemical and philosophical experiments and lectures. Seats elevated in the form of an amphitheater, will accommodate about one hundred and fifty students. The laboratory is supplied with tables and all the appliances for individual experiment by the class. Thirty pupils can work at one time. Around the long tables in the library two dozen pupils can together consult books of reference.

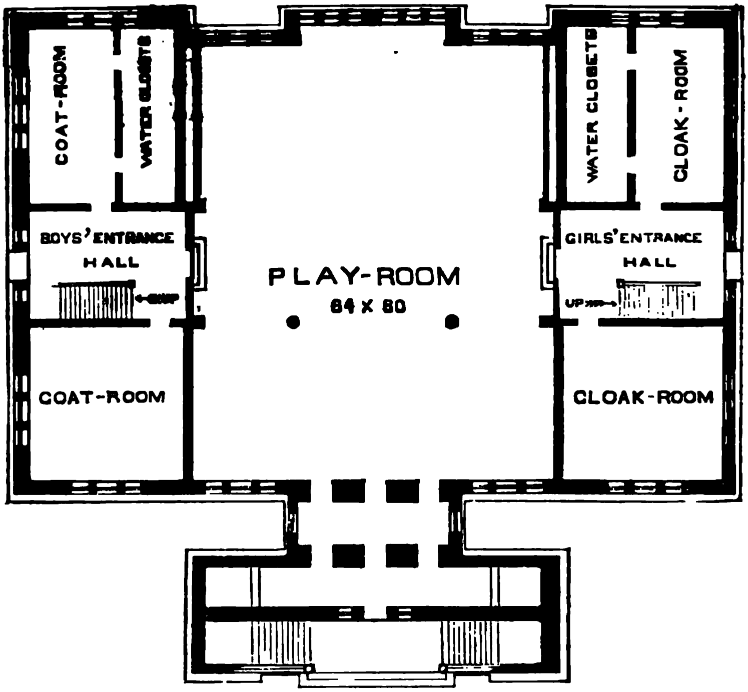
The audience hall will seat seven hundred people; and by opening the broad sliding doors to the front anterooms there are seats for one thousand. These anterooms might all be used as class-rooms. A stage in front and another in the rear provide for both music and oratory.

Each school-room is furnished with tables for the teachers, and the Normal desks and chairs, manufactured by Joseph Ross, of Boston.

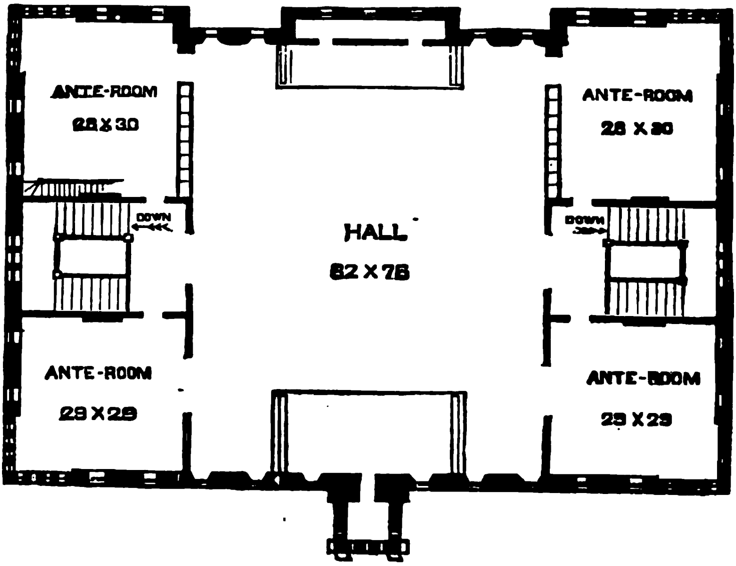
Heat and Ventilation.

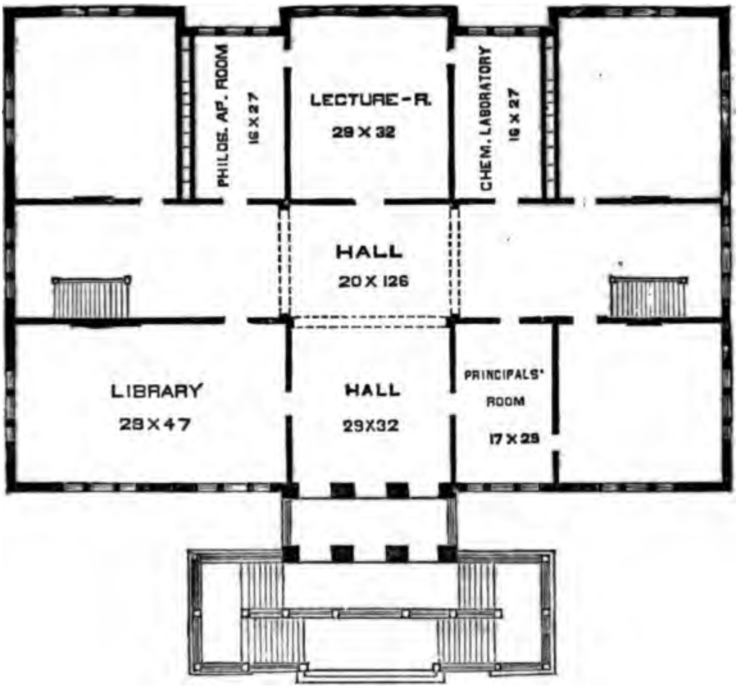
The building is heated by steam, by the two systems of direct and indirect radiation combined. It was at first intended to employ only the indirect radiation; but to guard against a chance that this as arranged might be insufficient, it was decided to place radiators in the school-rooms and halls. The steam is generated in two tubular boilers, each 4 feet in diameter and 30 feet long, which are placed in a building a hundred feet or more distant from the school-house; and the steam is carried under ground in pipes wound with felt and otherwise protected. It has been found easy to warm the entire building to a desired temperature in the coldest weather with a pressure of five to eight pounds per square inch, and with an average consumption of about a ton of coal per day.

The arrangements for ventilation are as follows: The lecture-room has large registers in the ceiling, opening into foul air-ducts running up to the belfry; and one school-room has ducts similarly arranged, except that the registers are placed in the floor. All other rooms have registers placed in, or near the floor, connecting with large ventilators on the roof, by a separate duct for each room.

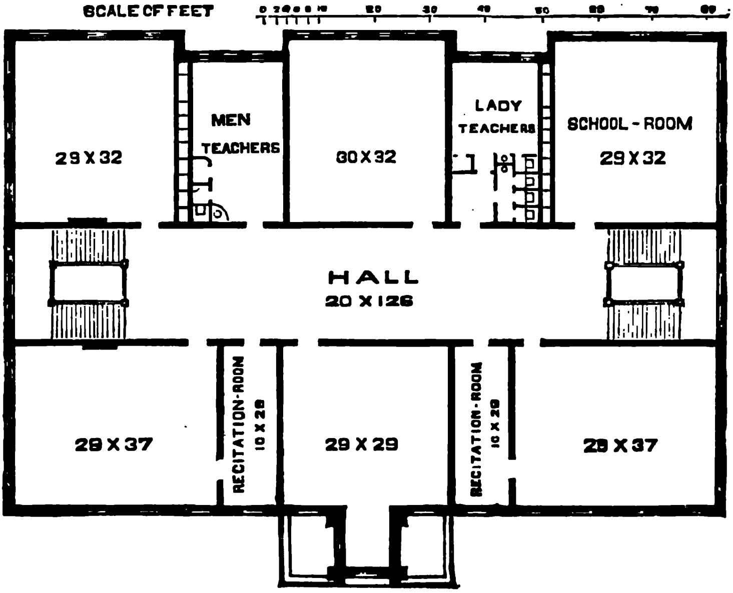


PLAN OF BASEMENT





PLAN OF FIRST STORY



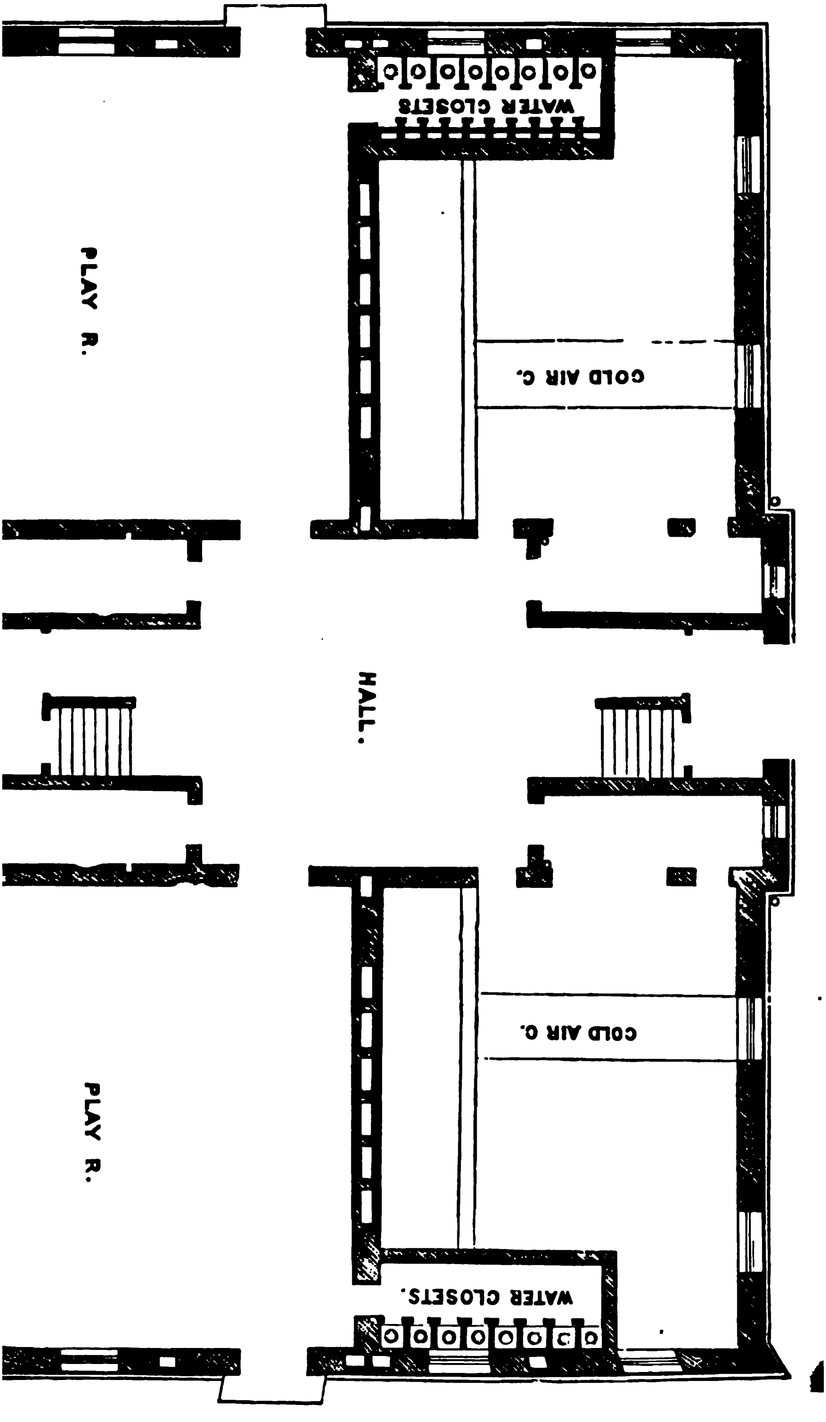
Each of these ducts has connected with it a smaller flue, starting in the basement, and terminating just above the opening in the duct for the admission of foul air; and in this small flue, it is the design to create a draft by a burning gas jet. This part of the system has not been carried out, and judging from the limited trial made thus far it is thought that efficient ventilating will be secured without requiring extra heat for creating a draft. In addition to the above described means of ventilation, there are flues in the outer walls opening beneath the projecting eaves and connecting with the several rooms by registers placed near the floor. These flues can be expected to be of practical value only in exceptional states of the atmosphere.

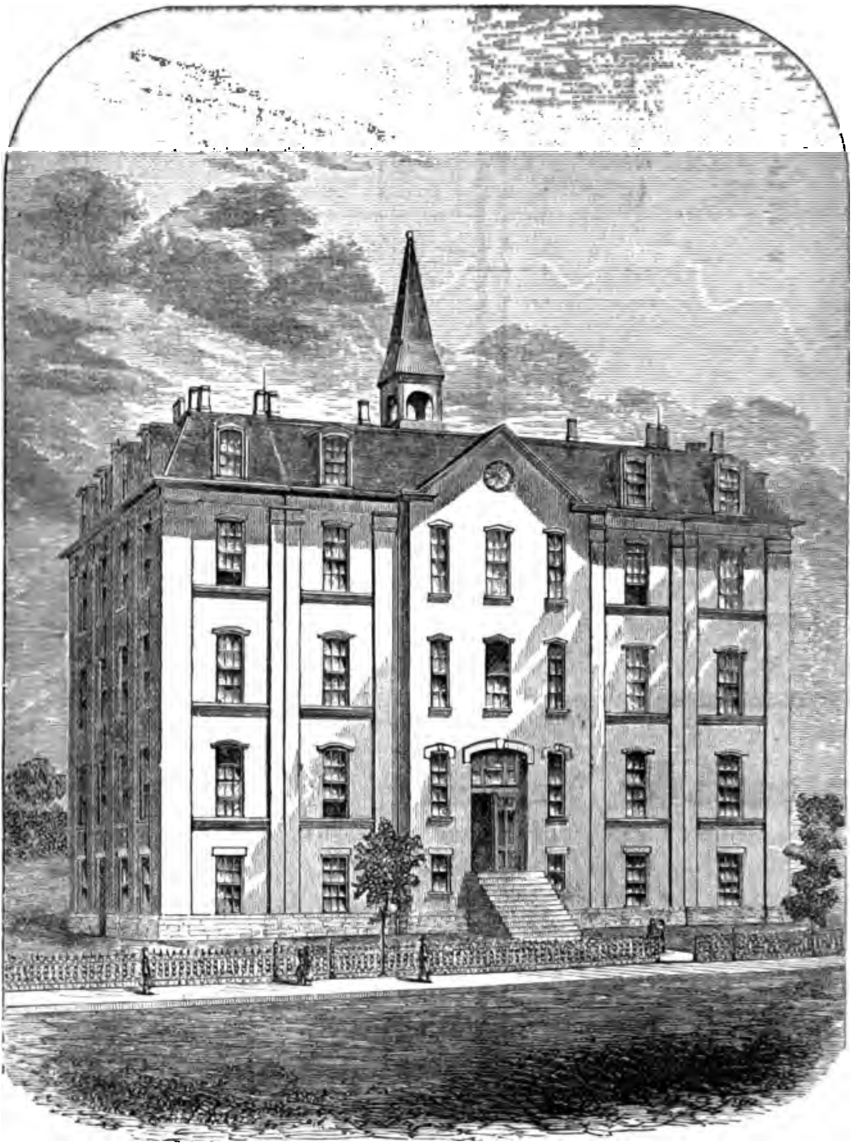
Dedication, December 30, 1871

The exercises of dedication, arranged by a special committee of the City Council, were held in the large hall in the upper part of the building, which was filled to its utmost capacity with an interested audience. The platform was filled with an assemblage of distinguished citizens, ex-mayors, members of the City Council of 1870, 1871 and 1872, members of the School Board, the directors of the Free Public Library, clergymen and others. Numerous school officers and teachers from other cities were present, as invited guests.

Addresses were made by the mayor, Edward Earle, by P. Emory Aldrich (*Chairman of High School Committee*), Mr. Davis (*Principal of the High School*), Col. Marble (*Superintendent of City Schools*), Ex-Gov. A. H. Bullock, Gen. Eaton (*U. S. Commissioner of Education*), Joseph White (*Secretary State Board of Education*), Henry Barnard, and Pres. Minor (*Tuft's College*).

THE FIRST HOUSE—1845


WATER CLOSETS
PLAY R.
COLD AIR C.
HALL.
COLD AIR C.
PLAY R.
WATER CLOSETS.



CHARTER OAK STREET SCHOOL.

PLAN OF CHARTER OAK SCHOOL HOUSE, HARTFORD, CONN.

The building for the Public School on Charter Oak Street, in the South Meadow, within the Colt embankment, was erected in 1871, at a cost of $47,000. In this aggregate is included the cost of the site, and piling the foundations ($5,000), of the heating apparatus ($3,500), and of the iron fence and sidewalks ($4,550).

The building is 95 × 54 feet on the ground, and three stories high above the basement, and is surmounted by a French roof, from which rises the bell-tower.

The base of the building, for three feet above the ground, is of Portland stone, laid in cement, and resting upon substantial piling driven to the depth of fifteen to twenty-five feet. The walls of the building above the stone base are faced with pressed brick, and the caps and sills are of brown stone.

The brick walls are hollow, and constructed with heavy outside pilasters through which the ventilating flues and chimneys are carried, thus leaving the inside surface of the walls plain for blackboards. For this reason, also, the hot air flues are all constructed within the main central partition wall.

The building has four entrances, one at each side, and one at each end. The side doors are designed for the use of teachers and visitors, and the two doors at the ends (one for males and the other for females), opening direct into the play-rooms, are for the use of the pupils.

The floor of the basement is of cement, and elevated some twenty inches above the side walks, and the grounds are so graded as to give them a gradual descending slope from the building outward.

The basement is twelve feet in height, and divided into rooms as shown on the plan. The two play-rooms are each 32 × 25 feet. The school-rooms are each 32 × 25 feet, and the wardrobes 17 × 5 feet.

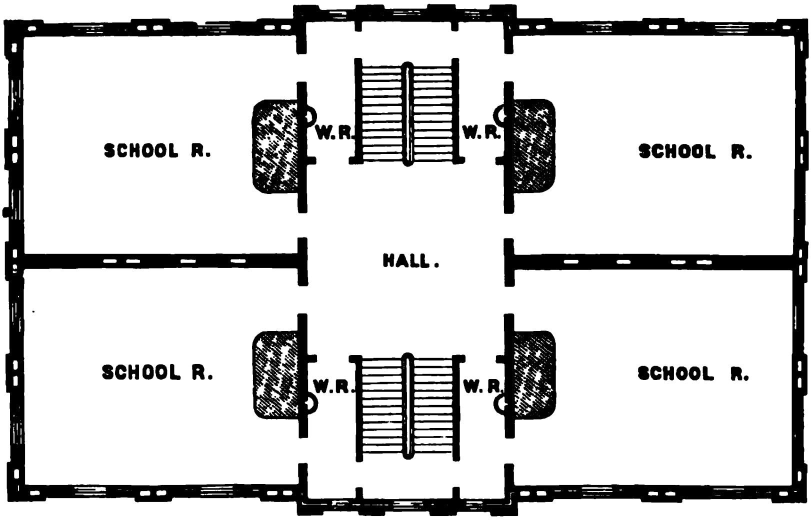
These two stories are each 14½ feet in height in the clear. On the third floor is an assembly room, 58 × 52 feet, which is furnished with a beautiful 'Steck' piano. This story is 16½ feet high.

All the school-rooms are provided with platforms, chairs and school desks of the best models for the use of the teachers. The chairs and desks occupied by the pupils are of the most approved patterns, the seats being hung on pivots so as to be thrown up or down at the pleasure or convenience of the occupants in taking or leaving their places. This arrangement also enables the janitor the more readily to keep the rooms, and especially the floors, neat and tidy. The school-rooms are all large and commodious, and will comfortably seat five hundred pupils.

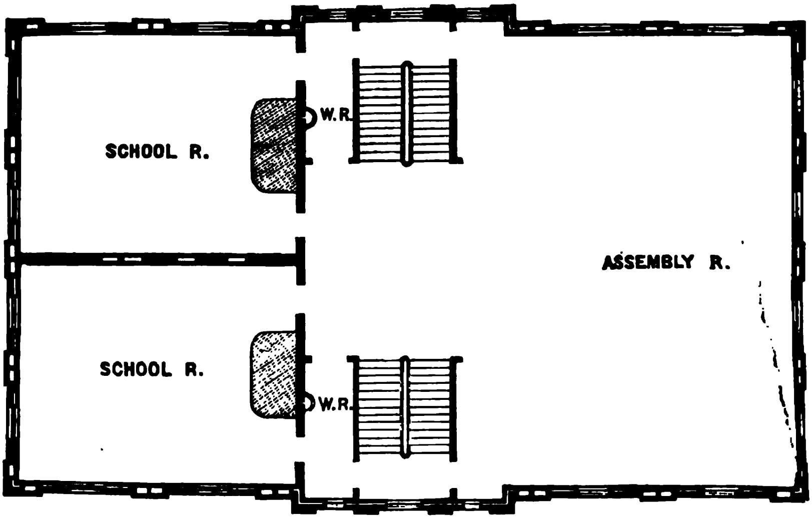
Each room has its wardrobe and hydrant on the same floor for the use of the pupils, and directly over these, suitable wardrobes are arranged for the use of the teachers, making the whole as complete and perfect as possible in every particular.

Building Committee.—Hugh Harbison, Leverett Brainard, and Horace Lord.

The building was set apart for its educational uses on the 6th of September, 1871, by appropriate religious exercises, and addresses by Rev. C. R. Fisher, Acting School Visitor, Mr. Harbison and Mr. Lord of the District Committee, Mr. Chauncey Harris, Principal of the South School, President Jackson and Prof. Huntington of Trinity College, and Rev. Dr. Childs of the Theological Seminary.



First and Second Floors.



Third Floor.

PLANS OF STEVENS' INSTITUTE OF TECHNOLOGY, HOBOKEN, N. J.

THE STEVENS' INSTITUTE OF TECHNOLOGY* in Hoboken, New Jersey, occupies a large lot (425 by 200 feet), which was left by the munificent benefactor (Edwin A. Stevens), as a site of an Institution of Learning, near his own residence on the heights of Hoboken, overlooking the bay and the cities of New York and Hoboken. In addition to this valuable lot for a site, Mr. Stevens left at the discretion of his executors a sum of money, which the executors have appropriated to the maximum sum allowed ($650,000), for the foundation and establishment of an Institution of Learning, which, in view of the existing needs of the country at large, and of the personal interest always manifested by Mr. Stevens in the development of the mechanic arts, they have determined to be a School of Mechanical Engineering, and have erected on the site directed a building for its accommodation.

The entire length of the main building is 180 feet front, by 44 feet deep; of the west wing, 60 feet by 30 feet wide; and of the center wing or Lecture Hall, 80 feet by 50 feet wide—giving a floor space of nearly one acre. Besides the room in the basement which is all utilized for the purposes of the Institute, there are thirty-four rooms set apart for the several professors and their classes, with abundant accommodations for the library, laboratories, model rooms, and larger and smaller lecture and class-rooms. We have as yet in the United States no single edifice so admirably arranged and richly equipped with all the appliances of instruction, experiment and illustration, as that of the Stevens' Institute.

The building has been erected, and all the laboratories and architectural constructions and fixed appliances have been incorporated with special reference to the subjects to be taught and illustrated. In the portions devoted to Chemistry and Metallurgy, tables with pneumatic tank, and all the conveniences for generating and laying on the gases, and securing downward draught for escape of fumes, with store-room, closets and drawers for large and small pieces of apparatus; in the portions devoted to Physics and the entire Physical Department, the laboratory is divided into alcoves, each devoted to some special subject of research, such as (1) Molecular Physics; 2, General Laws of Statics and Dynamics; 3, Hydrostatics and Hydrodynamics; 4, Pneumatics; 5, General Laws of Heat; 6, Special Relations of Heat to Steam; 7, Electrical Measurements; 8, Magnetism; 9, Sources of Electricity; 10, Light, each with its appropriate constructions and appliances; in the rooms devoted to Mechanical work, connections with the steam-engines are made, screw cutting lathe, planer, gear-cutter and milling-machine, with a drill, a punch, as well as all necessary hand tools, are provided; in the room devoted to Optics, all requisite space and constructural aids are given, to make available the largest and best apparatus for class illustrations of optical phenomena, or for the prosecution of higher studies; and so of the other portions devoted to Mechanical Engineering, Photography, &c; the building is constructed and furnished with all the recent adaptations and appliances.

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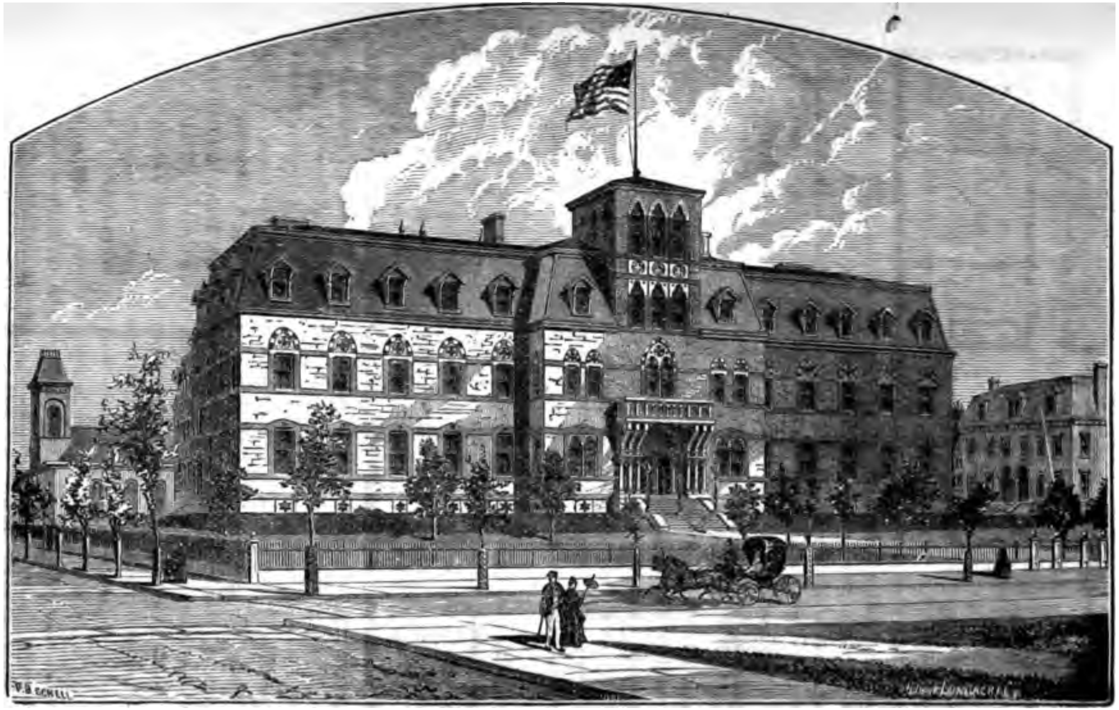
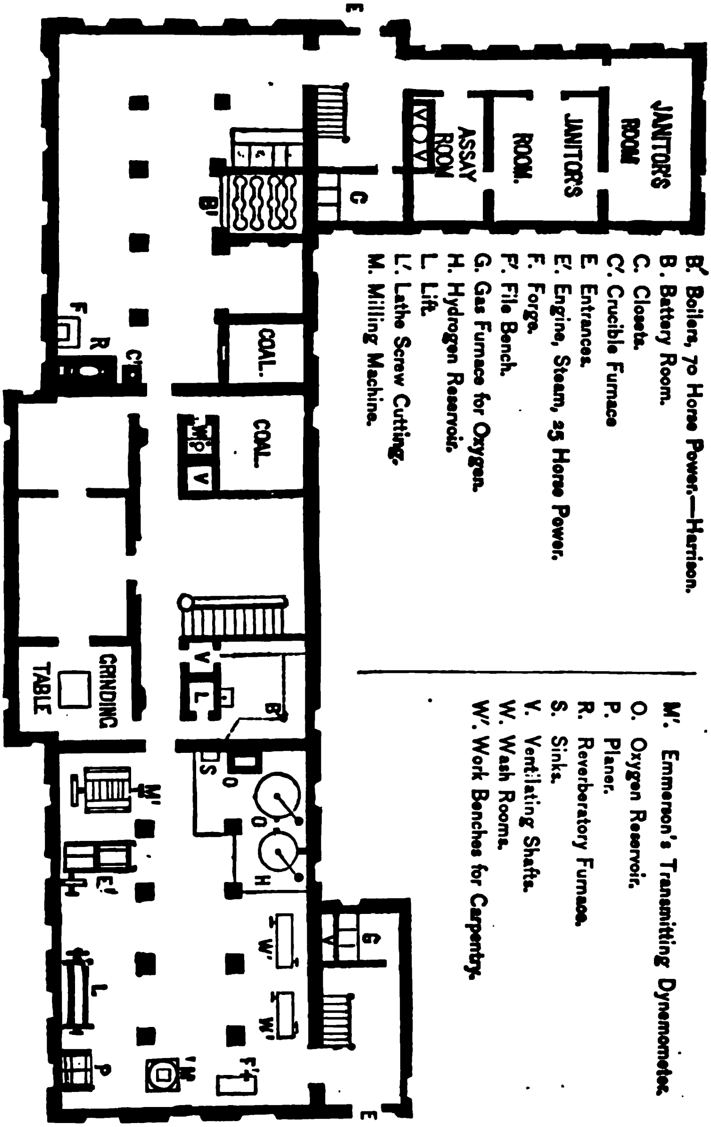
* A full description of this School of Mechanical Engineering, which embraces a high general culture, as well as technical training, with a list of its drawings, apparatus and models, will be given in our next *Volume (for 1873).*



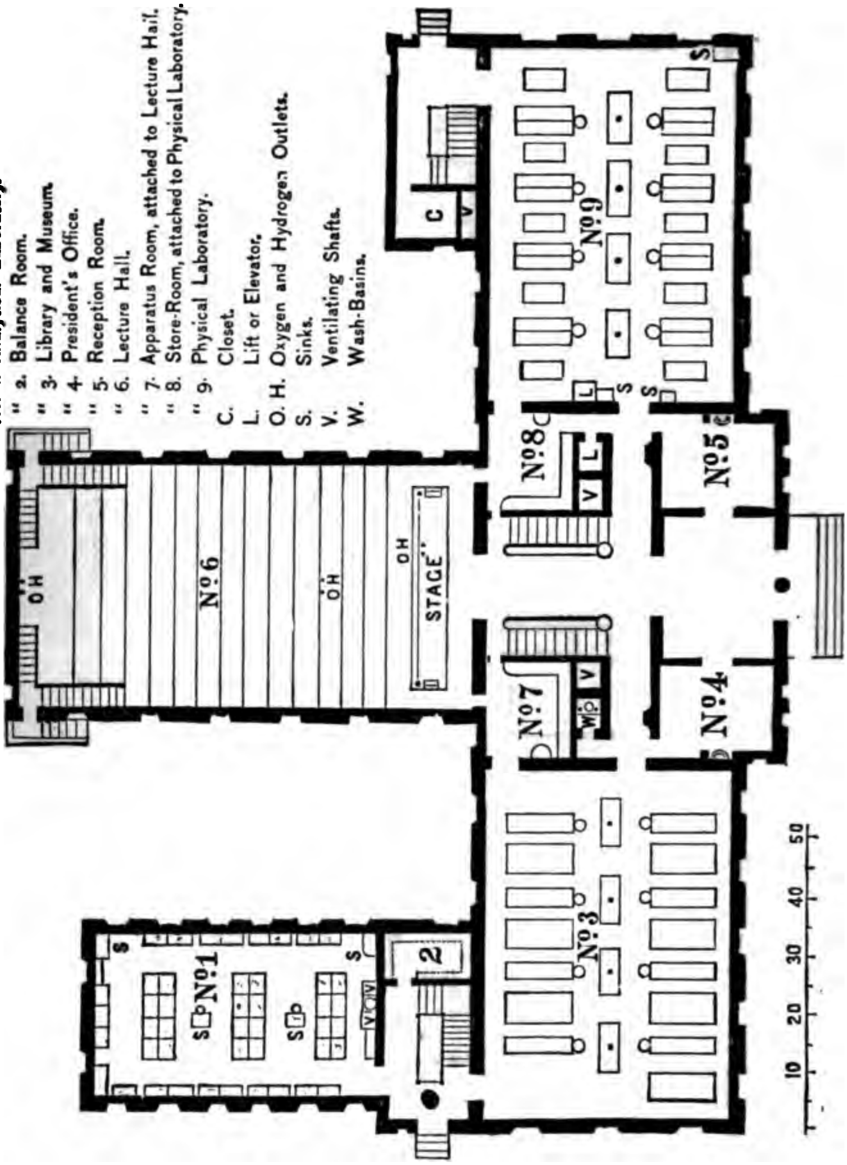
STEVENS' INSTITUTE OF TECHNOLOGY—HOBOKEN, N. J.



B'. Boilers, 70 Horse Power.—Harrison.
B. Battery Room.
C. Closets.
C'. Crucible Furnace
E. Entrances.
E'. Engine, Steam, 25 Horse Power.
F. Forge.
F'. File Bench.
G. Gas Furnace for Oxygen.
H. Hydrogen Reservoir.
L. Lift.
L'. Lathe Screw Cutting.
M. Milling Machine.

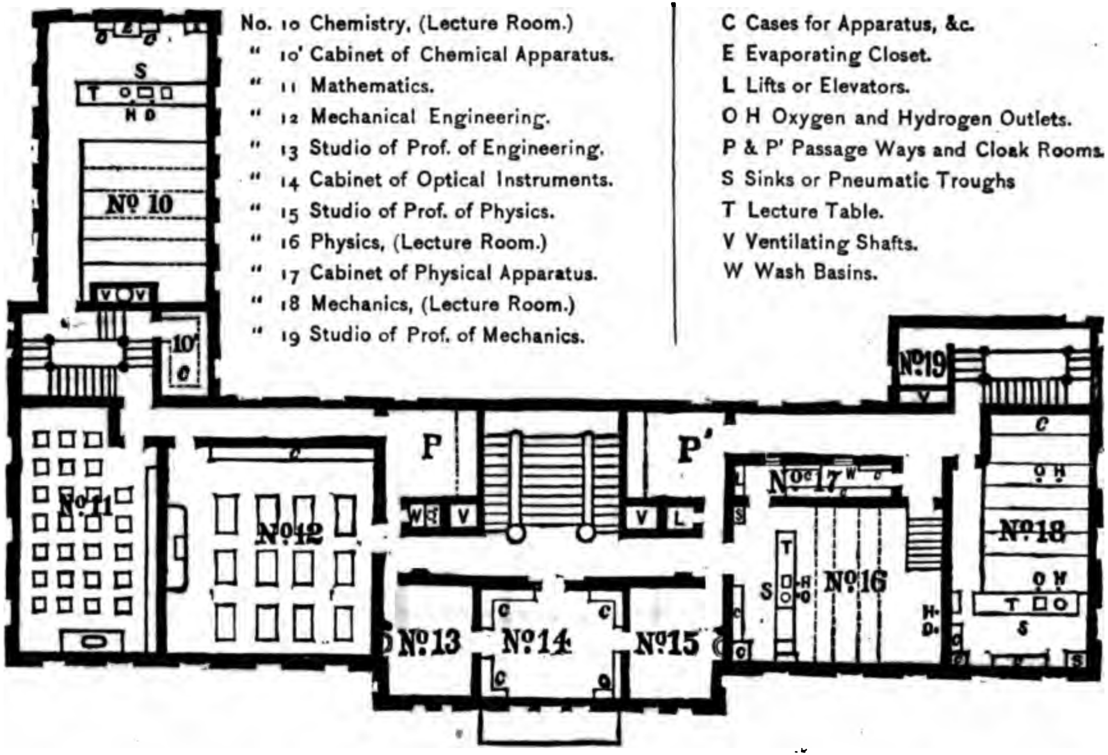
M'. Emmerson's Transmitting Dynamometer.
O. Oxygen Reservoir.
P. Planer.
R. Reverberatory Furnace.
S. Sinks.
V. Ventilating Shafts.
W. Wash Rooms.
W'. Work Benches for Carpentry.

BASEMENT.



No. 1. Analytical Laboratory.
" 2. Balance Room.
" 3. Library and Museum.
" 4. President's Office.
" 5. Reception Room.
" 6. Lecture Hall.
" 7. Apparatus Room, attached to Lecture Hall.
" 8. Store-Room, attached to Physical Laboratory.
" 9. Physical Laboratory.
C. Closet.
L. Lift or Elevator.
O. H. Oxygen and Hydrogen Outlets.
S. Sinks.
V. Ventilating Shafts.
W. Wash-Basins.

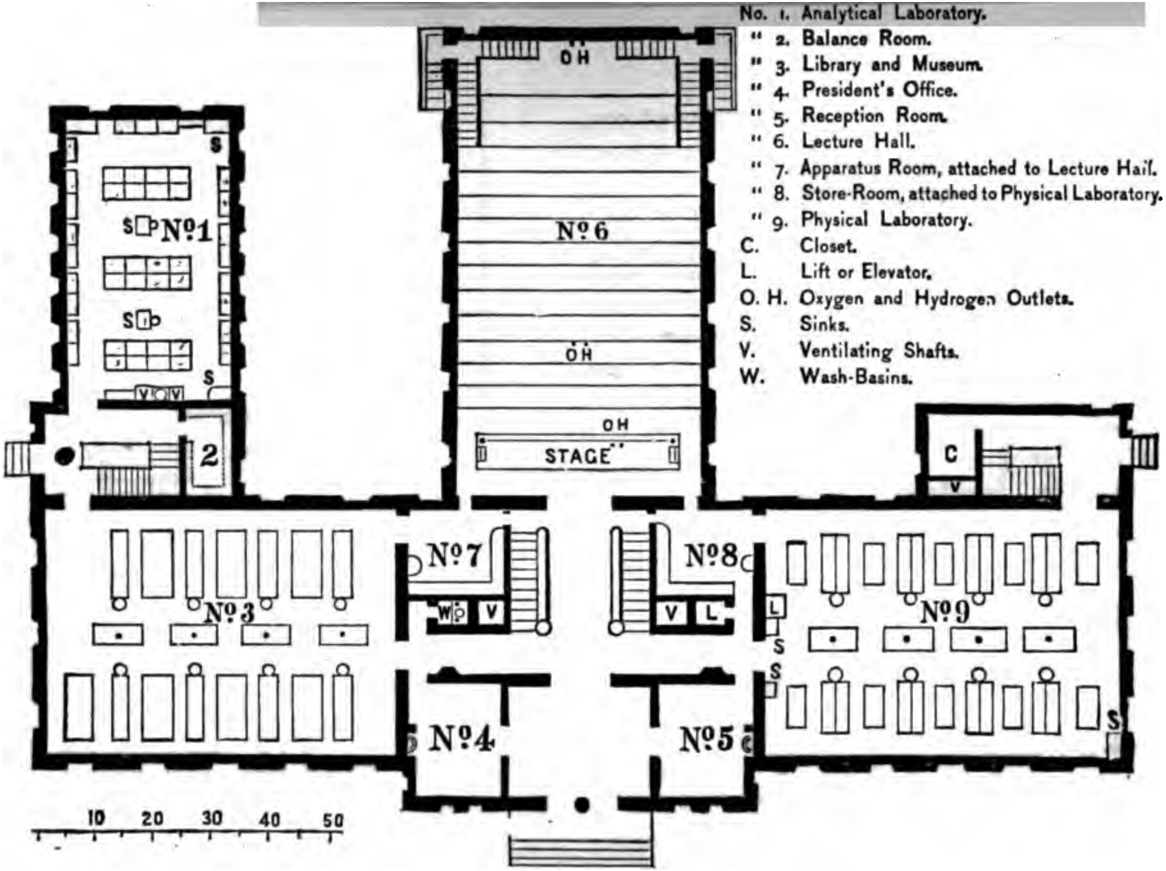
First Floor.



No.	10	Chemistry, (Lecture Room.)
"	10'	Cabinet of Chemical Apparatus.
"	11	Mathematics.
"	12	Mechanical Engineering.
"	13	Studio of Prof. of Engineering.
"	14	Cabinet of Optical Instruments.
"	15	Studio of Prof. of Physics.
"	16	Physics, (Lecture Room.)
"	17	Cabinet of Physical Apparatus.
"	18	Mechanics, (Lecture Room.)
"	19	Studio of Prof. of Mechanics.

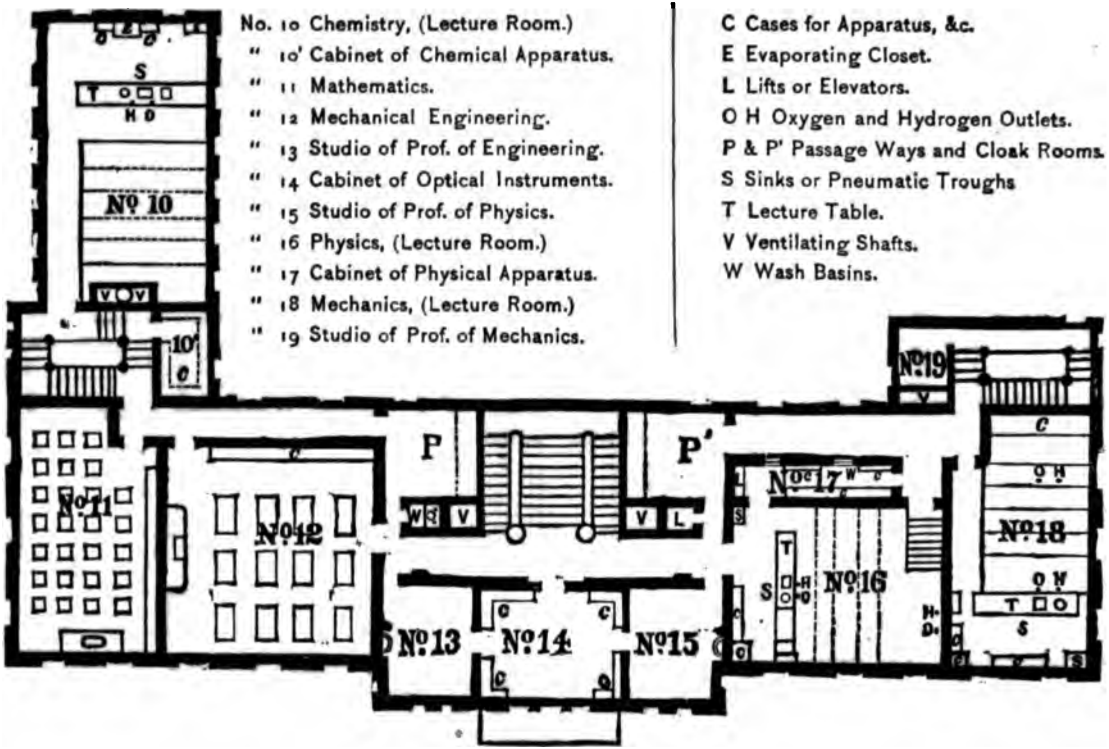
C	Cases for Apparatus, &c.
E	Evaporating Closet.
L	Lifts or Elevators.
O H	Oxygen and Hydrogen Outlets.
P & P'	Passage Ways and Cloak Rooms.
S	Sinks or Pneumatic Troughs
T	Lecture Table.
V	Ventilating Shafts.
W	Wash Basins.

SECOND FLOOR.



No. 1.	Analytical Laboratory.
" 2.	Balance Room.
" 3.	Library and Museum.
" 4.	President's Office.
" 5.	Reception Room.
" 6.	Lecture Hall.
" 7.	Apparatus Room, attached to Lecture Hall.
" 8.	Store-Room, attached to Physical Laboratory.
" 9.	Physical Laboratory.
C.	Closet.
L.	Lift or Elevator.
O. H.	Oxygen and Hydrogen Outlets.
S.	Sinks.
V.	Ventilating Shafts.
W.	Wash-Basins.

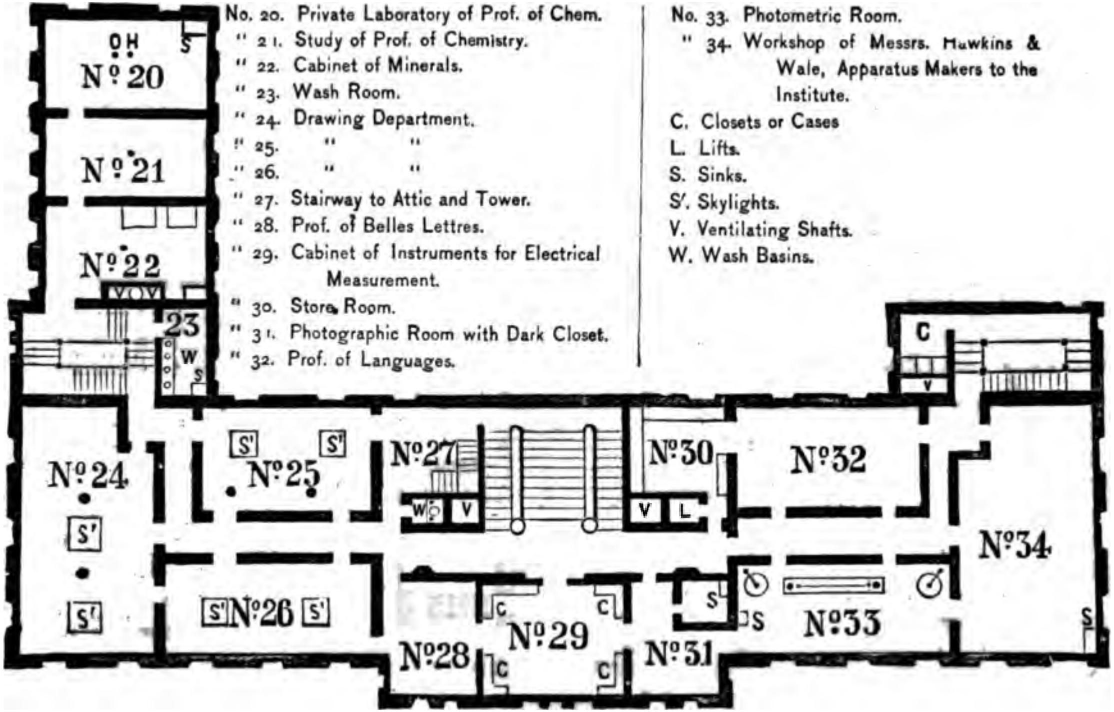
First Floor.



No. 10 Chemistry, (Lecture Room.)
" 10' Cabinet of Chemical Apparatus.
" 11 Mathematics.
" 12 Mechanical Engineering.
" 13 Studio of Prof. of Engineering.
" 14 Cabinet of Optical Instruments.
" 15 Studio of Prof. of Physics.
" 16 Physics, (Lecture Room.)
" 17 Cabinet of Physical Apparatus.
" 18 Mechanics, (Lecture Room.)
" 19 Studio of Prof. of Mechanics.

C Cases for Apparatus, &c.
E Evaporating Closet.
L Lifts or Elevators.
O H Oxygen and Hydrogen Outlets.
P & P' Passage Ways and Cloak Rooms.
S Sinks or Pneumatic Troughs
T Lecture Table.
V Ventilating Shafts.
W Wash Basins.

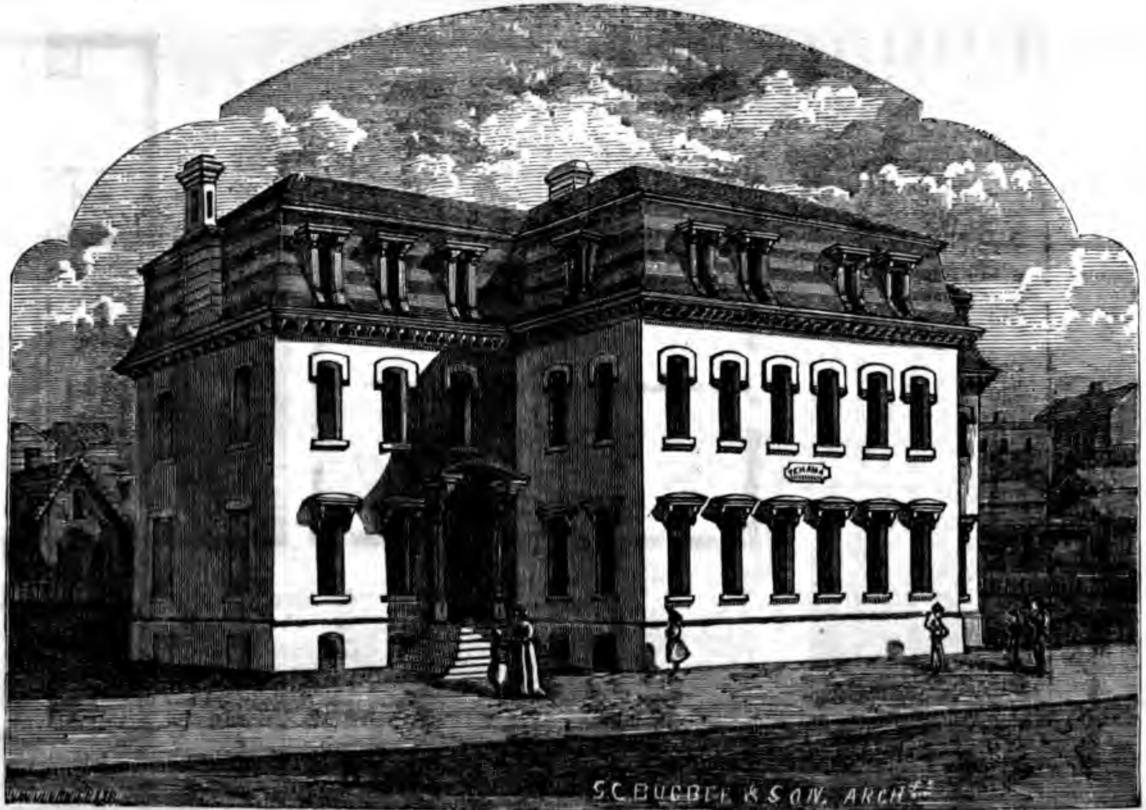
SECOND FLOOR.



No. 20. Private Laboratory of Prof. of Chem.
" 21. Study of Prof. of Chemistry.
" 22. Cabinet of Minerals.
" 23. Wash Room.
" 24. Drawing Department.
" 25. " "
" 26. " "
" 27. Stairway to Attic and Tower.
" 28. Prof. of Belles Lettres.
" 29. Cabinet of Instruments for Electrical Measurement.
" 30. Store Room.
" 31. Photographic Room with Dark Closet.
" 32. Prof. of Languages.
No. 33. Photometric Room.
" 34. Workshop of Messrs. Hawkins & Wale, Apparatus Makers to the Institute.
C. Closets or Cases
L. Lifts.
S. Sinks.
S'. Skylights.
V. Ventilating Shafts.
W. Wash Basins.

THIRD FLOOR.

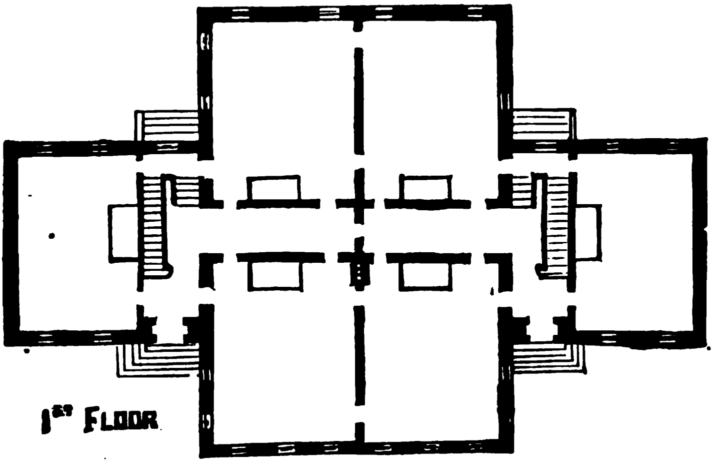
STEVENS' INSTITUTE OF TECHNOLOGY—HOBOKEN, N. J. Rear View.



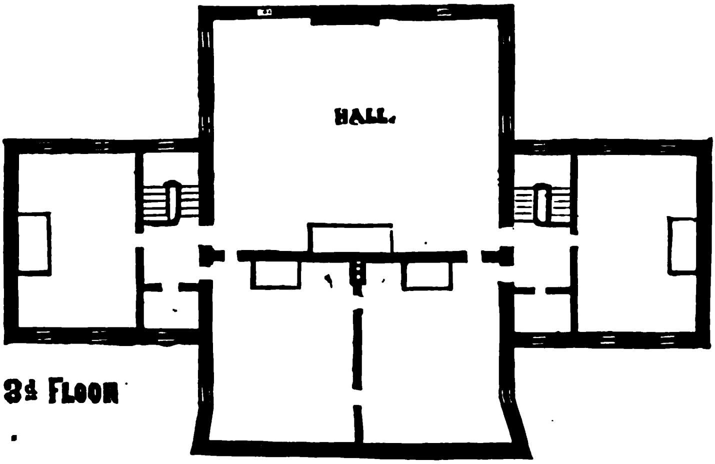
TEHAMA PRIMARY SCHOOL, SAN FRANCISCO, CALIFORNIA.
Erected in 1867. Cost, $28,300.

TEHAMA PRIMARY SCHOOL-HOUSE

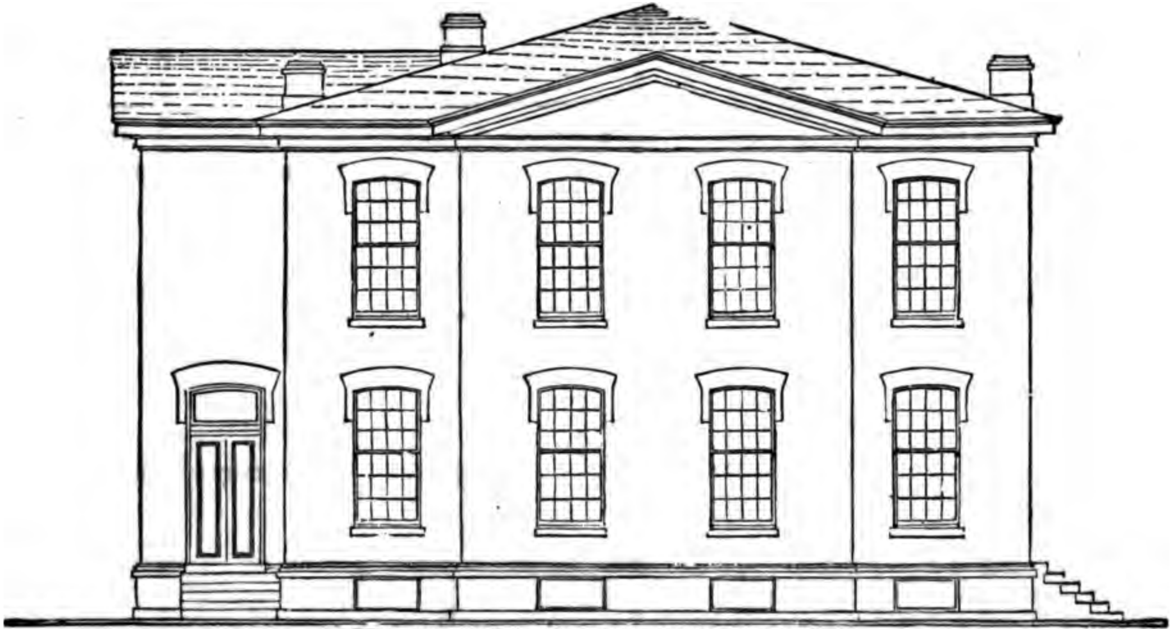
Is situated on Tehama street, and was completed Jan. 1st, 1867, at a cost of $28,300, and accommodates 1000 pupils. The building is arranged in the form of a cross; the main body is 52 × 75 feet, the wings on either side being 29½ × 33 feet; the entire frontage is 111 feet. There is a basement under the entire building, divided in the centre, forming two wet weather play-rooms for boys and girls. The entrances are in the angles of the wings; two on the front and two in the rear, approached by flights of granite steps. The principal story is 15 feet high in the clear, with four rooms in the main building 24 × 31 feet, and one in each wing 18 × 30 feet. The halls containing the stairways are in the wings, extending through from front to rear, 9½ × 30 feet wide, with a corridor through the centre, from one to the other, eight feet wide. The second story is 15 feet high in the clear, arranged in the same manner as the first floor, having two teachers' rooms, 9½ × 10 feet, over the front entrances. The third, or upper floor, is 13 feet high in the clear; the rooms in the front and wings are the same as below, besides an assembly hall 41 × 49 feet, with a dome sky-light in the centre.



1st FLOOR



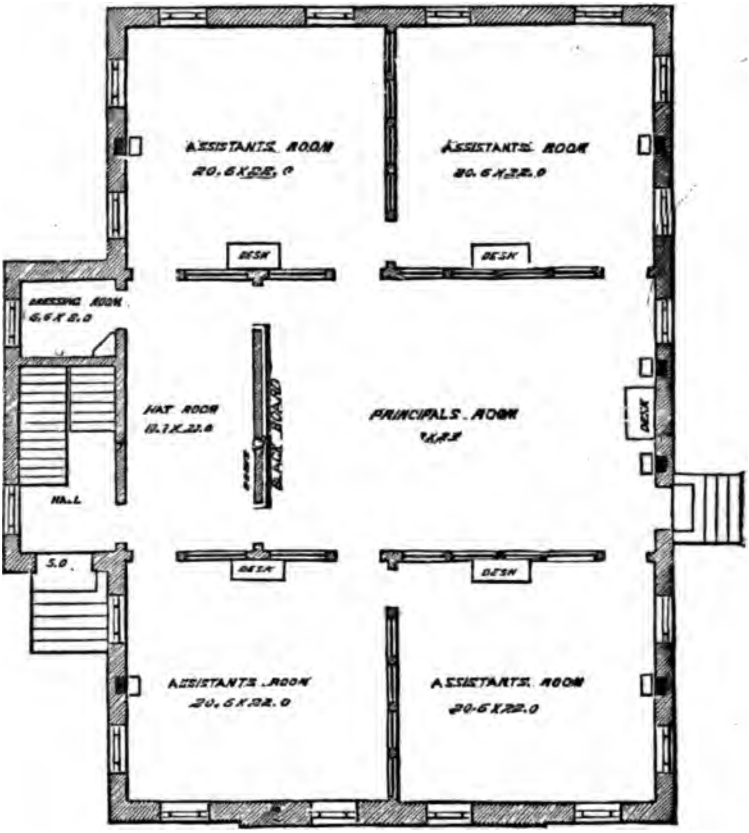
3d FLOOR



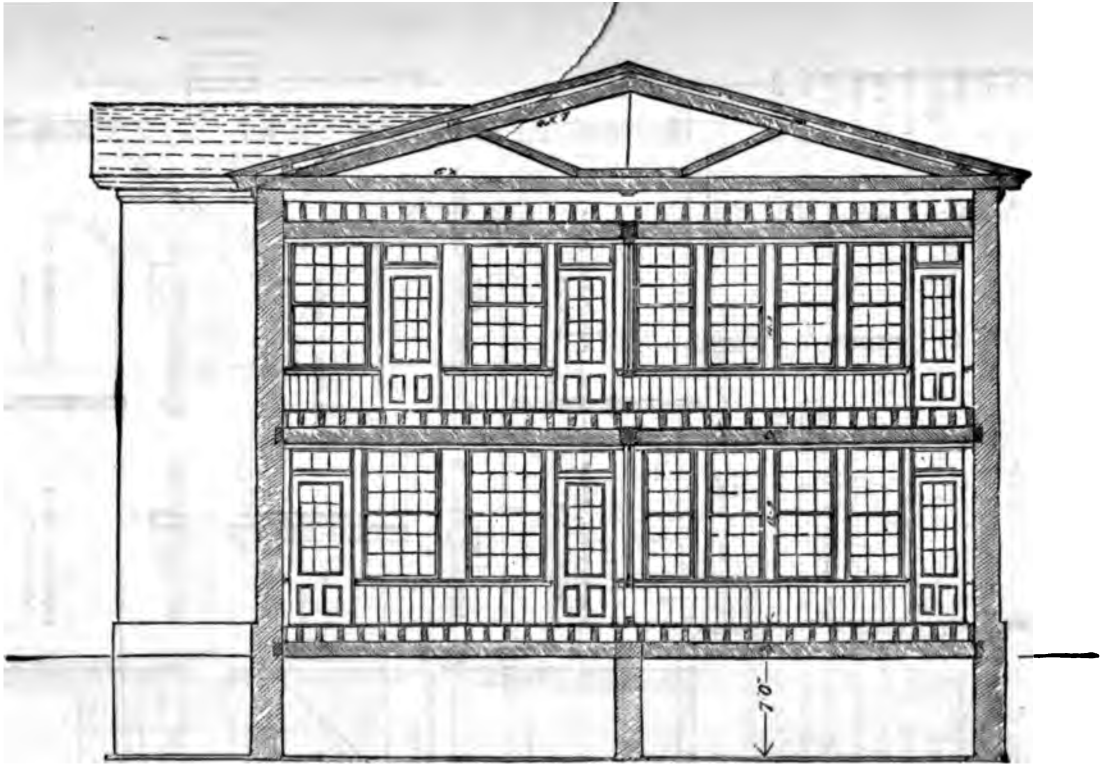
PUBLIC PRIMARY SCHOOL, BALTIMORE, MARYLAND.

Plan for a Primary School.

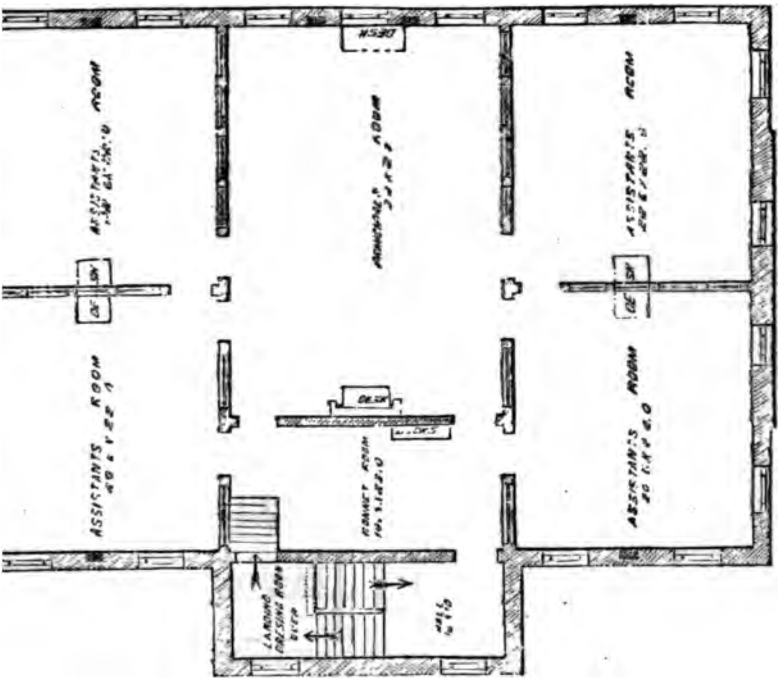
The plan prepared as a model for a Primary School building represents five rooms on each floor, with hat and bonnet rooms and other conveniences. The room designed for the Principal is 33 × 23 feet. It has an area of 759 square feet, and will seat comfortably ninety-five pupils. The class-rooms are each 22 × 20 feet, and contain 440 square feet. They are designed to seat sixty pupils each. Upon each floor may be seated three hundred and thirty-five pupils. The whole building will seat conveniently six hundred and seventy pupils. The projection on the side admits the hat and bonnet rooms, stairway and retiring room for the teachers. As in the plan provided for the Grammar School building, this admits of the view of the entire school from the desk of the Principal, and when occasion requires, by elevating the lower sash of the partition, the pupils of all the rooms may be addressed from the platform in the Principal's apartment.



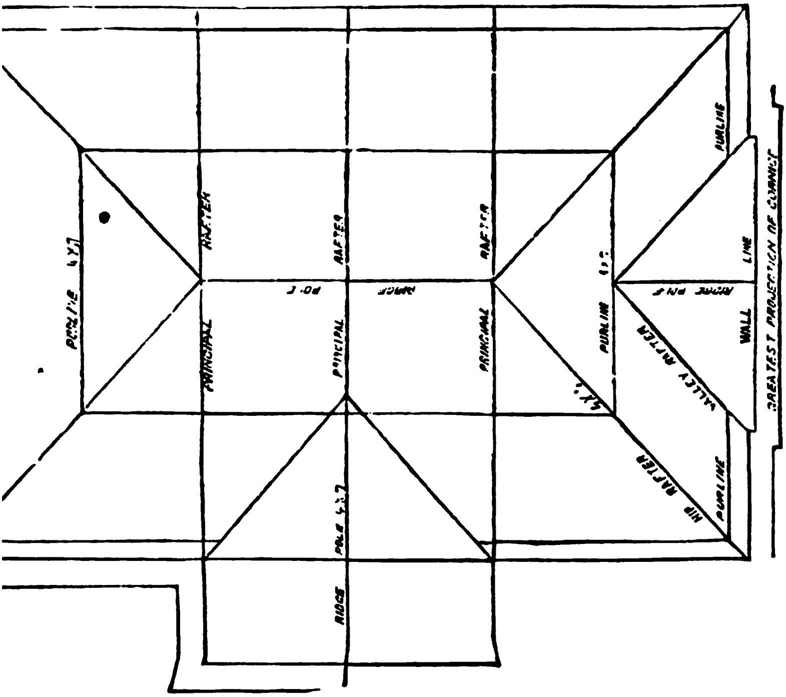
First Story—Primary School.



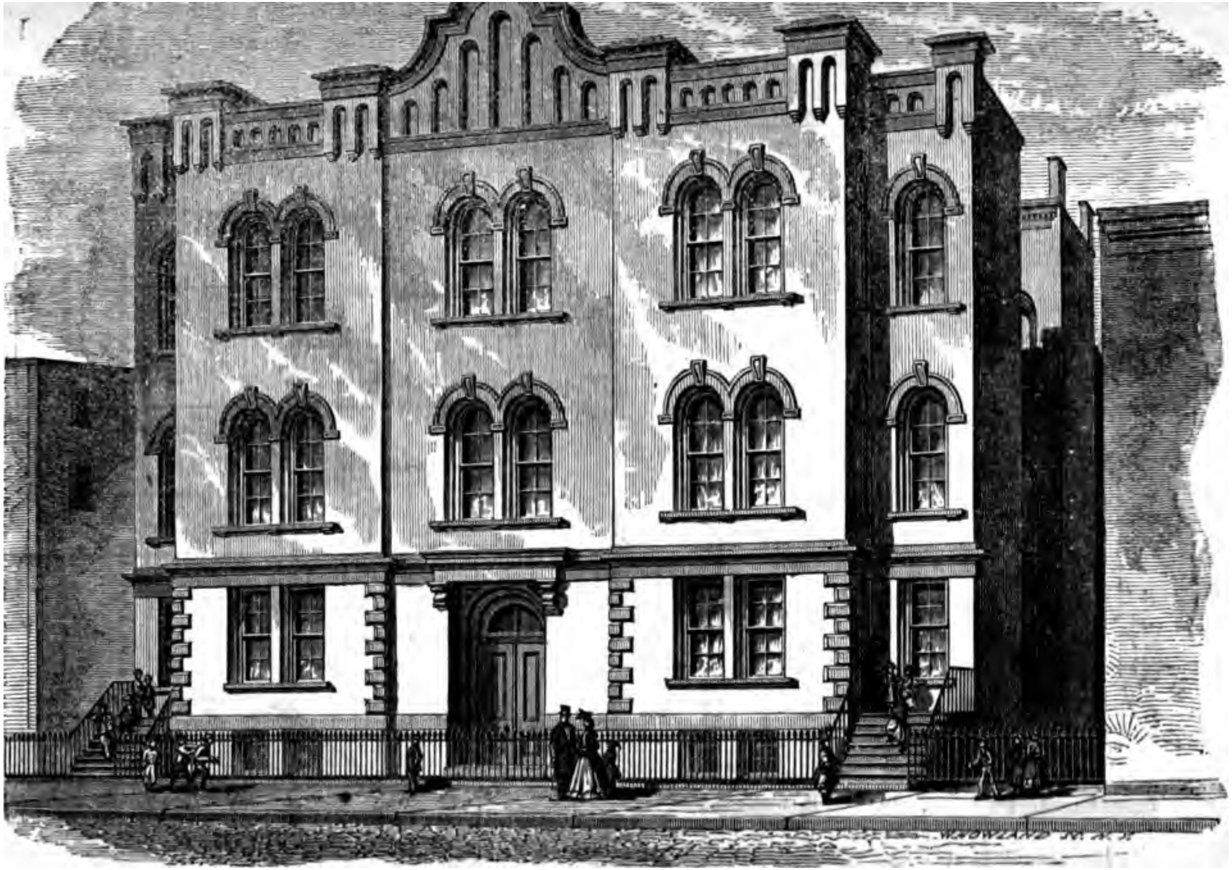
PRIMARY SCHOOL, BALTIMORE, MARYLAND, (Transverse Section, showing Sash Partitions, &c.)



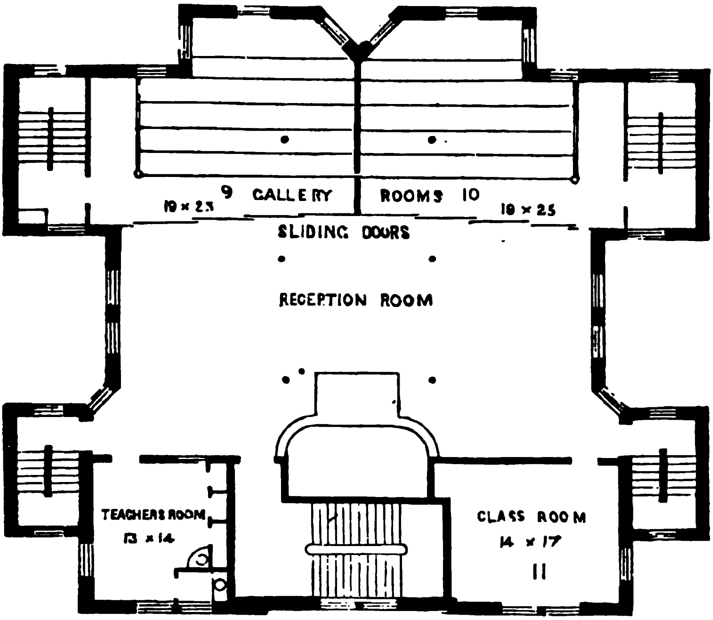
SECOND STORY—PRIMARY SCHOOL.



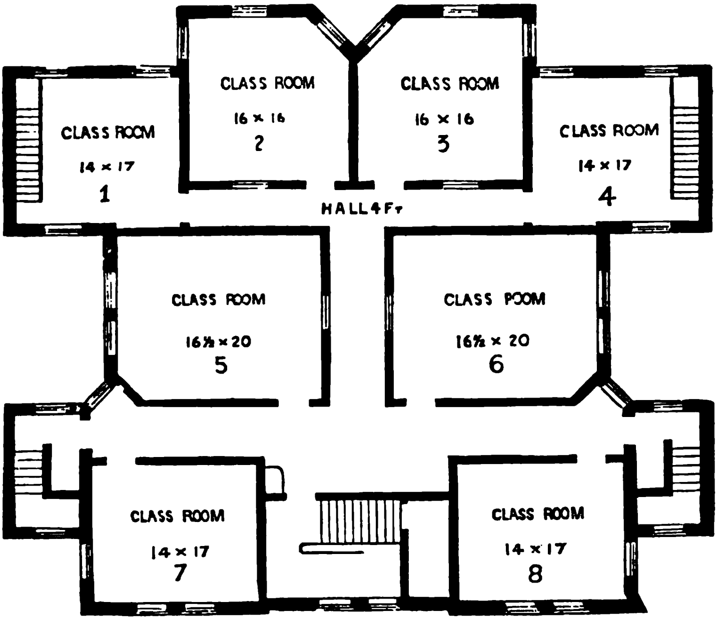
FRAMING OF ROOF—PRIMARY SCHOOL.



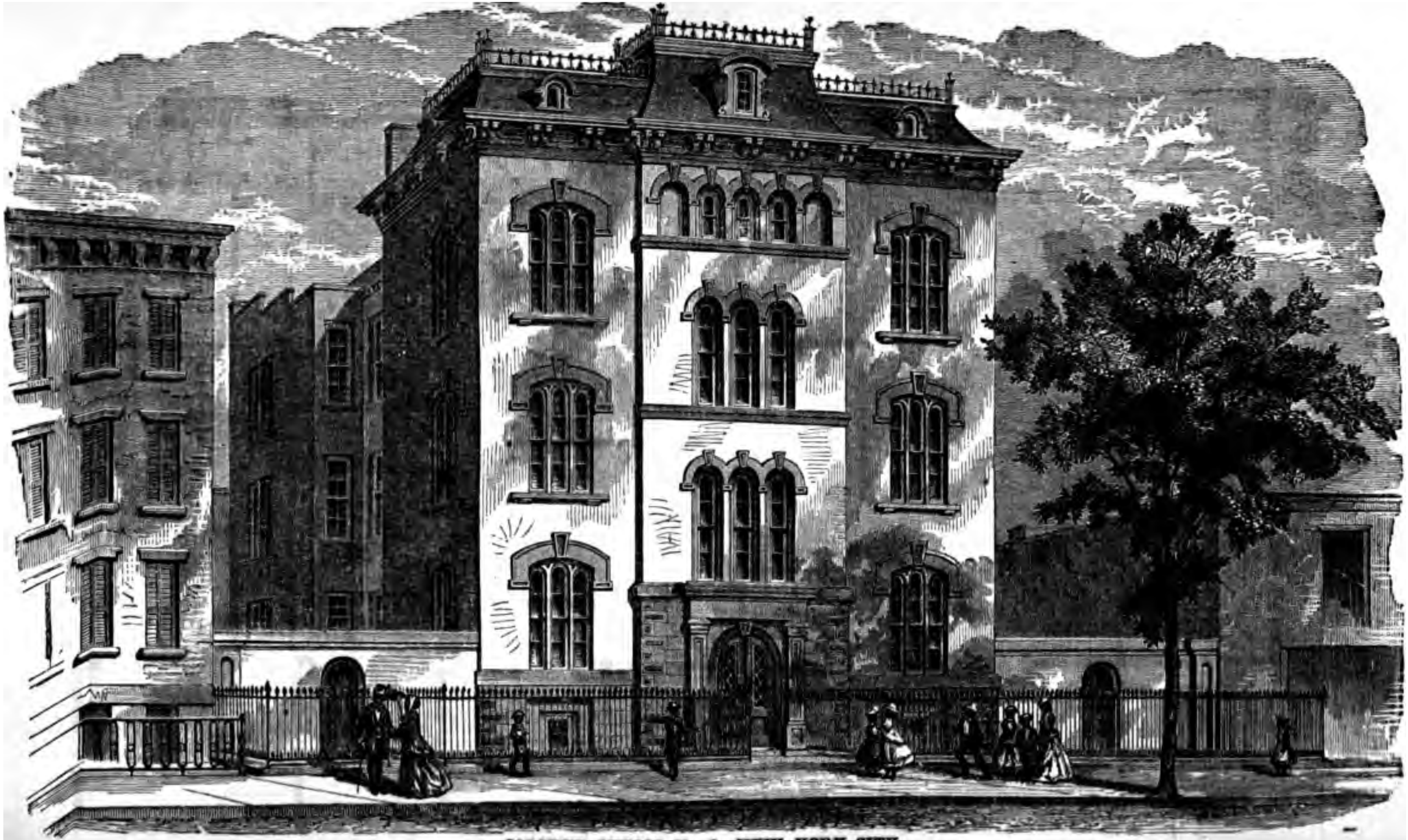
PRIMARY SCHOOL No. 12, FOURTH WARD, NEW YORK CITY.



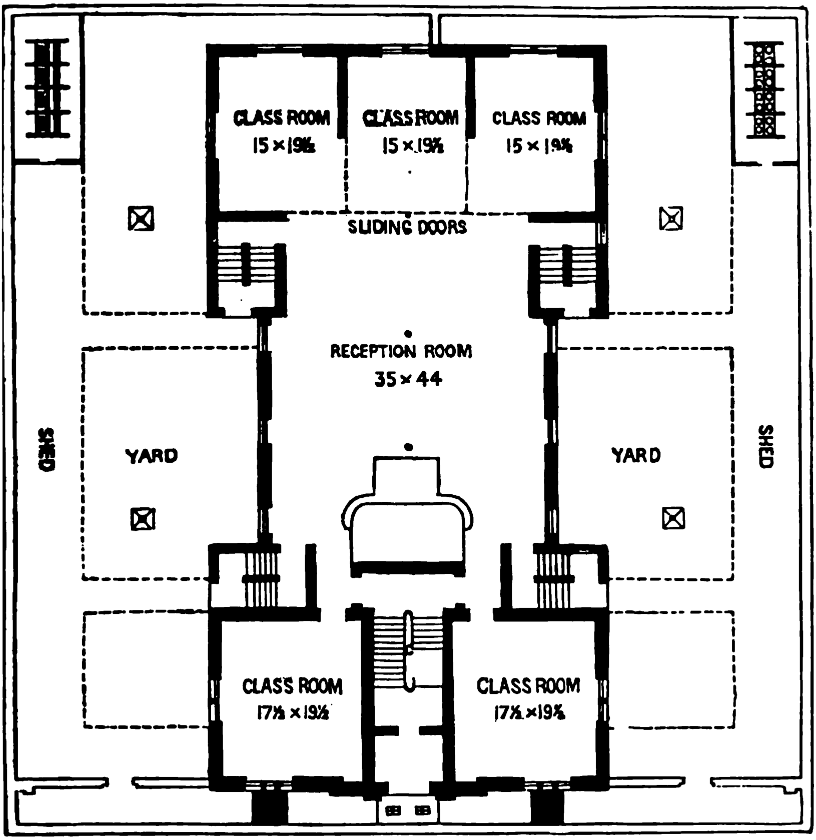
Second Floor.



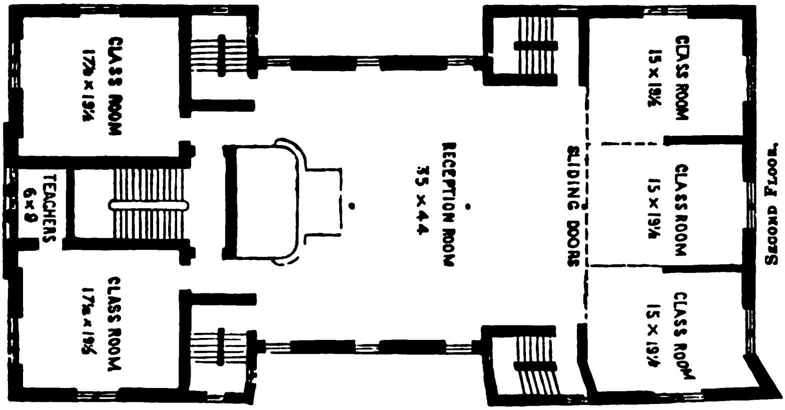
Third Floor.



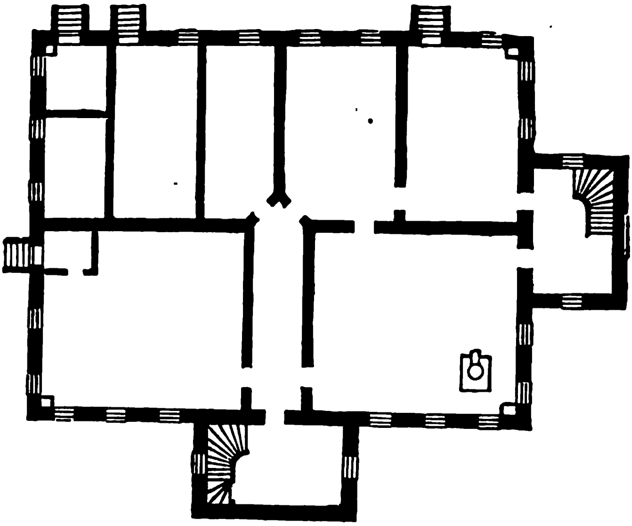
COLORED SCHOOL, No. 3, NEW YORK CITY.



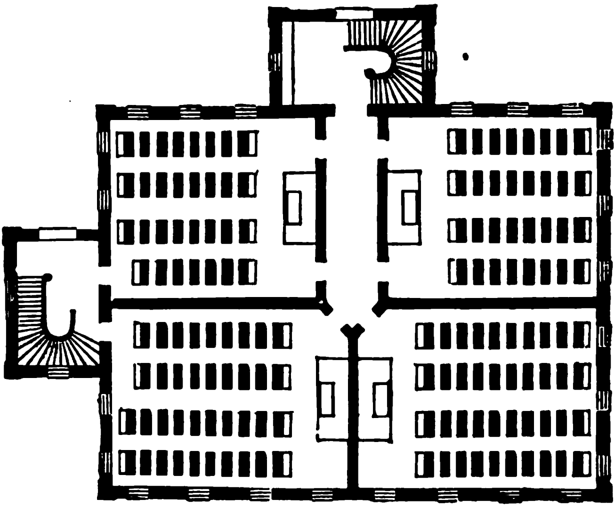
First Floor.



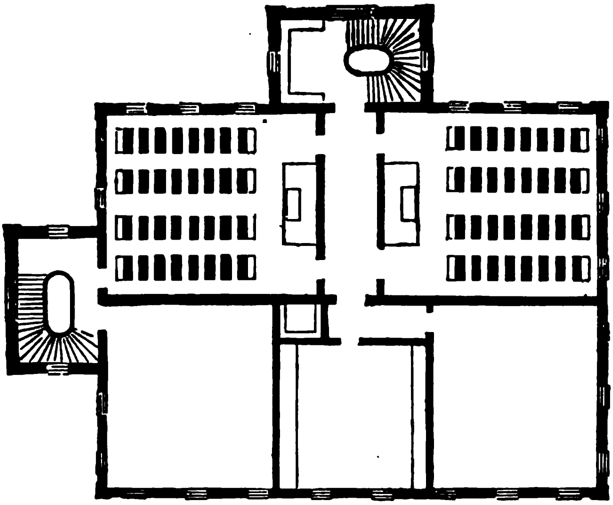
Second Floor.



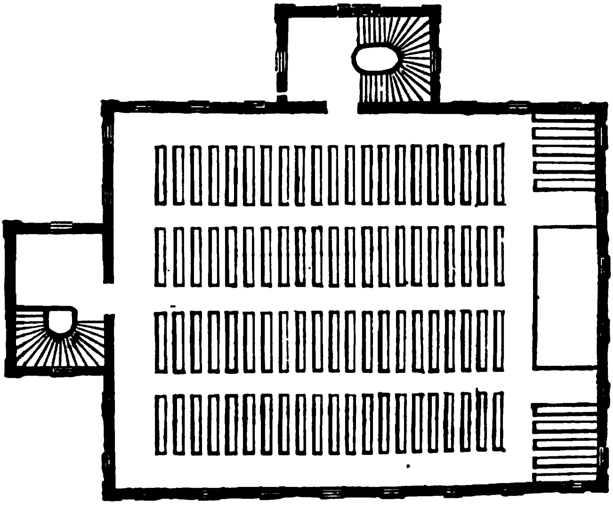
BASEMENT.



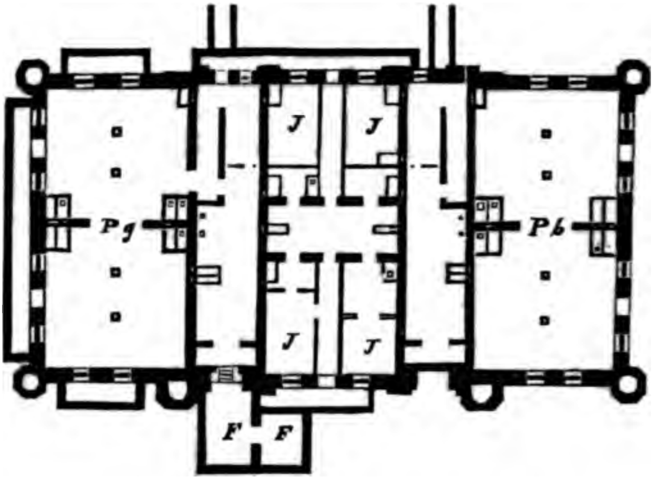
FIRST FLOOR.



SECOND FLOOR.

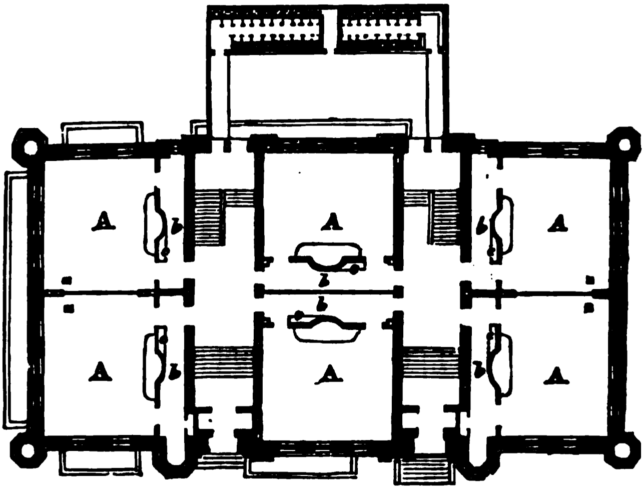


THIRD FLOOR.



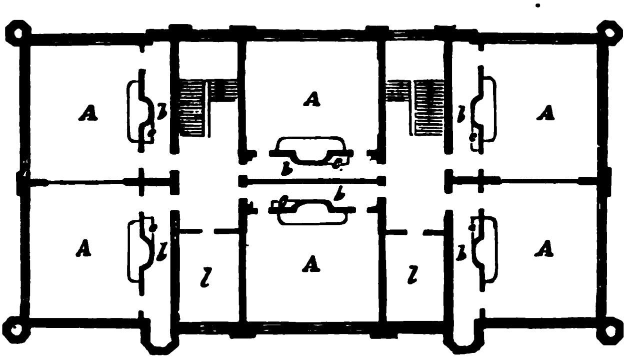
BASEMENT.

P. g. Play-ground, boys.
P. g. " " girls.
J. Janitor's apartments.
F. Fuel.



FIRST FLOOR.

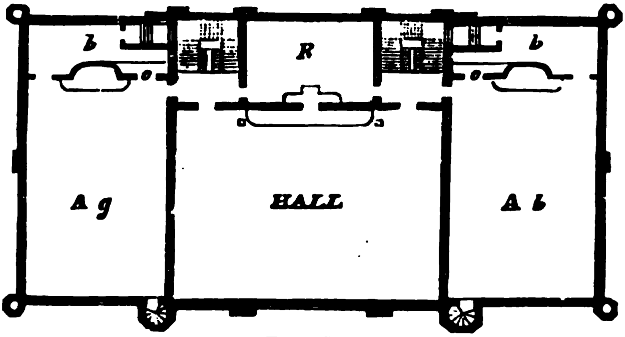
A. Class rooms, 27×33 feet.
b. Pupils' cloak rooms, 6 ft. 3×33 feet.
c. Teachers' closets.



SECOND FLOOR.

A. Class rooms, 27×33 feet.
b. Pupils' cloak rooms, 6 ft. 3 in.×33 ft.

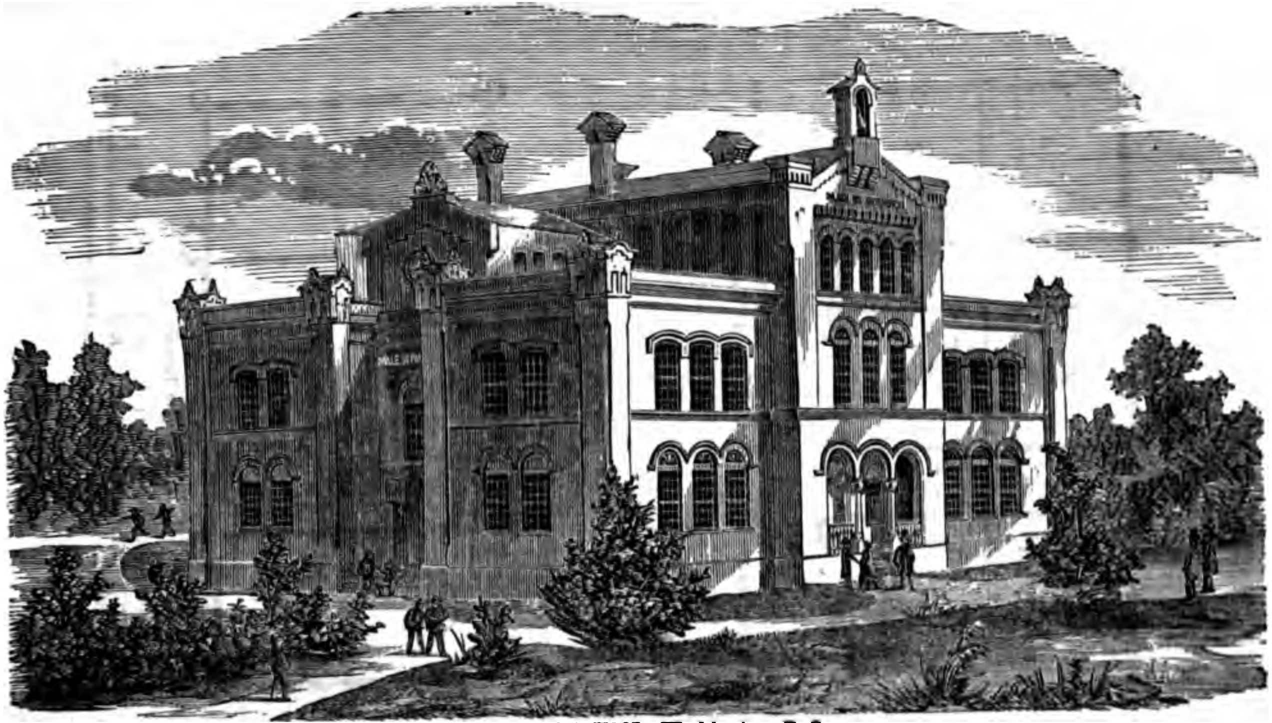
l. Library, 14 ft. 8 in.×21 ft. 6 in.
c. Teachers' closets.



THIRD FLOOR.

A. b. School-room, boys, 33 ft. 7×54.
A. g. " " girls, 33 ft. 7×54
Hall, 48×66.

R. Recitation room, 20 ft. 9×33.
b. Pupils' cloak rooms, 12 ft. 9×33 ft. 7.
c. Teachers' closets.



WALLACH SCHOOL, Washington, D. C.

THE NATIONAL EDUCATION DEMANDED BY THE AGE,

CONSIDERED IN CONNECTION WITH THE EDUCATIONAL SYSTEM OF FRIEDRICH FROEBEL.

By Prof. J. H. Von Fichte.*

I. EDUCATION—THE PROBLEM OF THE AGE.

SINCE Pestalozzi's great movement, it has become, at least in Germany, a universally recognized conviction, that only by means of an improved popular education, can the many defects of civil, social and family life be thoroughly corrected, and a better future be assured to our posterity. It may be asserted, still more universally, that the fate of a people, its growth and decay, depend, ultimately and mainly, on the education which is given to its youth. Hence follows, with the same indisputable certainty, the next axiom: that nation which, in all its classes, possesses the most thorough and varied cultivation, will, at the same time, be the most powerful and the happiest, among the peoples of its century; invincible to its neighbors and envied by its contemporaries, or an example for them to imitate. Indeed, it can be asserted, with the exactness of a mathematical truth, that even the most reliable preparation for war can be most surely reached through the right education of physically-developed young men. This conviction also gains ground in Germany; and renewed efforts are now made to introduce gymnastics (*turnen*) into the system of common school education, freed from all cumbersome modifications, and restored to their simple, first principles.

But the problems of national education are far from being limited to these immediate, practical aims. Its workings must not alone cover the present and its necessities; the great plan of national education must comprehend unborn generations, the future of our race, the immediate and therefore the most distant. Finally, man must not be educated for the State alone (after the manner of Greece and Rome), but the highest civil and educational aim must be to lead the individual and the whole race toward their moral perfection. National education must therefore extend beyond the popular and expedient; must construct its foundations on pure and universal humanity, and then raise upon these whatever national and professional wants require. This gradation of requirements strictly held, will prove to be a guiding rule of great importance.

Here now, it may seem—and "idealizing educators" have frequently received such reproaches—as if in these demands, far off, impossible problems were treated of, as if educational utopias were desired, instead of looking after what is nearest and most necessary. And one could say, even with an appearance of right, that inasmuch as we perform what is near and sure, we approach, at least progressively, our highest goal. For national education is a work so comprehensive, complicated and prodigious, that it can be realized only in favorable periods and within very circumscribed limits.

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* Translated by Emily Meyer, with slight verbal alterations and abridgements.

Admitting this last, we hope still to show how directly practical the consideration of that universal question of principle is, and that the education of the present will only reach its aim by beginning at this point. We are undeniably entering a new era. We are preparing to cast aside the last remnants of the middle ages. Inherited rights are precarious, or at least they can claim no legal sanction, while, nevertheless, much in our manners and customs remind us of the past. No one is compelled to serve another, and no individual enjoys in idleness the profits of another man's labor; but for each, labor and capacity are to be the sole supports of his position in life. Thus each is thrown upon his own exertions, and the path of unlimited competition and zealous effort is opened to all.

For this reason there should no longer be a privileged class, but to each, approximately at least, must be offered every thing which belongs to a universal human culture, and what his particular capacities demand or are able to appropriate. Only upon these two conditions can the citizen of the commonwealth be fitted for the future "struggle for existence," to continue equal to the increased requirements, and fulfill ably his chosen calling.

This new great principle of the equal rights of all to all which their talents can grasp, demands a plan of education fundamentally renovated and readjusted. In every given case, the education must be strictly proportional to the conditions which the period offers. But it can not be denied, that in the present period this proportional relation has not been reached; yes, there is even danger that it may be missed of, by a mistaken arrangement of details. For this reason, those upon whom the responsibility of educating rests, must recognize clearly the final aim of the same, and prepare it with practical certainty, through all the necessary grades. Above all, therefore, theoretically there must be no vacillation in principles, practically no failure in the correct issues! If we should succeed only in spreading a wholesome light over these two points, we should feel that we had solved our present problem.

Our politicians and State educators differ widely in regard to that aim; and this is the next ground where the struggle should begin. Whoever considers a republic the highest goal to which a State can attain, laments that he sees no republicans around him; these true education must make. But what the republican spirit, in which the people are to be educated, really is, there is no thorough insight. This spirit is the opposite of that which has till now existed, and which sees true freedom only in a leveling equality, and the overthrow of old authority and social barriers; and above all admits no civil compulsion in education. Each individual must cultivate himself for such practical purposes as he chooses, and as well as he can. Education and its institutions must be entirely untrammeled. As a fitting example we can refer to what is related of North America, where the educational conditions, and the consequent family life, are free in general. The pupil is prepared, as early as possible, to help himself onward, in some form of profitable business. The greatest activity, and the richest accumulation of property, is the aim of each. Though German republicanism may reject these principles, it must still admit that there is consistency in them, and that if the State has no higher aim than to become a great industrial and fiscal institution, an immense phalanstery for the most enhanced pleasures of this mortal life, this purpose is being realized on the other side of the ocean, in a highly practical way, and without unnecessary complications; not, indeed, without already displaying the moral evils which unavoidably accompany its progress, and to which our republican sages persistently shut their eyes.

Those who find their ideal state in old feudalism, in simple submission to the fatherly care of "princes by the grace of God," and see in a full return to such conditions the only safety from the dangers of the present, must also contemplate a reform, indeed a retrograde movement, of the educational system. They will insist upon clinging to old things, even to preserving what is decayed, solely because it is consecrated by authority. Nor are we without example of this; for we find a North German State, betraying a lamentable inconsistency and blindness in settling the most important question of popular education, limits the range and thoroughness of instruction, and thus destroys the germs of its future growth as a State.

These two parties—we have mentioned only their extreme characteristics, while numerous intermediate grades exist—designate only the extreme limits of the antithesis, which touches all the political and social questions of the age. They stand upon the broad field of the literature and opinions of our time, as if separated by a wide chasm, and in irreconcilable hostility. They could, however, by returning to their first, true principles, and acquiring a clearer insight, be brought to recognize each other; and, instead of incessantly quarreling, be made to acknowledge their relative rights, and work harmoniously upon the common task of improving the education of the people. We consider it not only desirable, but possible, that the work of reconciliation should begin with a true appreciation of popular education, which is the common aim of both sides. By this we mean that the conservatives, who will sacrifice nothing which is sanctified by age and authority, do not see how, in thus destroying, that which is truly valuable and enduring can be preserved. For the new form in which it is to arise more enduringly, does not present itself so distinctly that they can recognize it. This gives them a right to protest that it is better to retain the oldest positive form than sink into the nothingness of a bare negation; no new form should be introduced which is not at least a full compensation for the old.

On the other side, we see reformers too frequently losing themselves in what is external or unessential. They do not often get beyond empty plans of abolition. They are clear as to what they do not want, but do not perceive as clearly what is permanently to fill the place of that which they reject. They are deeply mistaken if they think, that, in ridding themselves of certain hindrances, they gain creative freedom, the power to erect a positive structure. We can not err, in asserting that most revolutions have failed and become unfortunately retrogressive, because their leaders did not know what they wanted, or at least what they ought to want.

In the first place, it is necessary to understand the past correctly, and to recognize clearly what in it has still a relative right to continue, and what must serve as a transitional basis and means for that which is new and necessary. The law of continuity, of gradual transition, which we see ruling organic life with irresistible sway, has also in all intellectual processes, whether political or social, its highest authorization, the violation of which never escapes punishment. We might call it the educational law of the world's history.

If we may be allowed to presume that, as a general thing, the best thinkers agree upon these fundamental principles, then we may consider the following inference as admitted. It is plain, namely, that the path of this gradual, complete, and peaceful transition from the present into the new period, must take place in the field of education; for in the growing race, the old and new time, the decaying past and vigorously-developing future, meet and are reconciled. And thus in this direction, the decisive truth is proved:

All political and social controversies of the present concentrate finally in the question of education; but not only in regard to what must be done in detail and immediately, but more universally still, in this: What is the only true education, the education worthy of the human being?

This is plainly a psychological-ethical question. It can be decided—with the permission of our practical teachers—only on philosophical ground. Not—and here experience must be our guide—not that a certain philosophical system is to construct for all time, an educational plan which all must follow, but that correct insight into the nature of the human intellect must first fix the nature and the end of all human education, and must at the same time designate the fundamental principles by which the several questions of education and instruction are to be decided. Thus we shall be able to dispose of the final question: Which one, of the now ruling educational systems, is best adapted to the nature of the human mind?

(To be continued.)

II. PRESENT CONDITION.

The Secondary schools of Scotland include the Burgh schools, Academies, and other institutions of a public character, with a complete and preparatory element in each. The Education Commissioners in their Third Report, submitted to Parliament in 1868, present the following summary view of the number, organization, and general condition of these schools, founded on the Report of two Assistant Commissioners, who made a personal inspection of the same, and of Mr. Fearon, an English Inspector, who examined some of the most prominent.

Kinds—Number—Constitution.

These schools, while they include elementary classes, and in some instances begin with the rudimentary instruction, continue the education of children of the middle classes to the close of the sixteenth year, and until the pupils go to the University or into business. They are divided into three classes.

First, There are *Burgh schools* the leading characteristic of which is, that they are subjected to the regulation and control of the authorities of the Burghs as such,* and are open to the community. As examples of the Burgh school proper, we may refer to the High schools of Glasgow and Edinburgh. It should be observed, however, that in some cases where the population is small, the Parochial school discharges the functions of a Burgh school also, and is then termed a *Burgh and Parochial School.*

Secondly, There are *Academies*, or *institutions*, both in Burghs and out of Burghs. Generally these establishments have been founded by subscription, as supplementary to the Burgh schools, and are managed by directors selected from the subscribers. Of these the Edinburgh Academy may be taken as a specimen. In some cases, however, these Academies or Institutions have been either partially or wholly amalgamated with the Burgh school. In case of partial amalgamation, as at Ayr, the effect is to add a *proprietary* element to the ancient Burgh foundation. In case of complete amalgamation, as in the instance of the Madras College, St. Andrews, the ancient Public school is merged in the new Institution, the Town Council having transferred the schoolhouse and garden to the newly appointed trustees.

But besides Public, there are (*thirdly*) *Private Secondary schools* which are of various kinds. Some of these are exclusively Boarding schools, such as Merchiston; some are exclusively Day-schools, such as the Edinburgh Institution, or a mixture of both, as in the case of the Gymnasium at Aberdeen. But their characteristic is that they are private property, maintained and conducted as private speculations.

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* There are fourteen districts of *Parliamentary* Burghs in Scotland, containing 69 Burgh towns, besides the large Parliamentary Burghs of Aberdeen, Dundee, Edinburgh, Glasgow, Greenock, Paisley and Perth, which are not included in any district of Burghs, and three *Royal* Burghs, Peebles, Rothesay and Selkirk, which till 1832 had a Parliamentary representation. This makes 79 Burghs, Parliamentary and Royal.

III. SUPERIOR INSTRUCTION.

The four Universities by which Superior Instruction is dispensed are organized as follows:

University of St. Andrews, 1411.

Chancellor, Duke of Argyll, LL.D., K.T.; *Vice-Chan.*, Principal Tulloch, D.D.; *Rector*, James Anthony Froude, LL.D.; *Senior Prin.*, Principal Tulloch, D.D.; *Dean of Fac of Arts*, Prof. Baynes, LL.B.; *Rep. in Parl.*, Lyon Playfair, C.B.; *Librarian*, R. Walker; *Registrar*, Robert Walker.

COLLEGE OF ST. SALVATOR AND ST. LEONARD.

Principal, J. C. Shairp, M.A.

PROFESSORS.

Humanity, John C. Shairp, M.A.
English Literature, Thomas S. Baynes.
Greek, Rev. Lewis Campbell, M.A.
Mathematics, W. L. F. Fischer, M.A., F.R.S.
Logic, Thomas Spencer Baynes, LL. B.
Moral Philosophy, Robert Flint.
Natural Philosophy, Wm. Swan, F.R S.E.
Natural History, W. McDonald, M.D.
Civil History, W. M'Donald, M.D.
Anatomy & Medicine, Oswald H. Bell, M.D.
Chemistry, M Foster Heddle, M.D.
Clerk & Factor, Stuart Grace.

COLLEGE OF ST. MARY.

Principal, John Tulloch, D.D.

PROFESSORS.

Systematic Theology, John Tulloch, D.D.
Biblical Criticism & Theology, F. Crombie, D.D.
Ecclesiastical History, A. F. Mitchell, D.D.
Oriental Languages, John M'Gill, LL.D.
Secretary & Factor, S. Grace.

University of Aberdeen, 1494.

Chancellor, Duke of Richmond; *Vice Chan.*, Principal Campbell; *Rector*, M. E. Grant-Duff, M.P.; *Principal*, P. C. Campbell, D.D.; *Assessors*, J. Webster, *Adv.*; W. Mearns, D.D.; A. Kilgour, M.D.; Rev. Prof Pirie, D.D.; *Rep. in Parl.*, E. S. Gordon; *Sec.*, W. Milligan, D.D.; *Libr.*, Rev. John Fyfe, A.M.

PROFESSORS.

Greek, W. D. Geddes, A.M.
Humanity, John Black, M.A.
Logic, A. Bain, LL.D.
Mathematics, F. Fuller, M.A.
Moral Philosophy, W. Martin, LL.D.
Natural Philosophy, D. Thomson, M.A.
Natural History, J. Nicol.
Systematic Theology, S. Trail, D.D, LL.D.
Church History, W. R. Pirie, D.D.
Biblical Criticism, W. Milligan, D.D.
Oriental Languages.
Law, P. Davidson, LL.D.
Institutes of Medicine, G. Ogilvie, M.D.
Practice of Medicine, J. Macrobin, M.D.
Chemistry, J. S. Brazier.
Anatomy, John Struthers, M.D.
Surgery, W. Pirie, F.R.S.E.
Materia Medica, R. Harvey, M.D.
Midwifery, A. Inglis, M.D.
Med. Jurisprudence, F. Ogston, M.D.
Botany, G. Dickie, M.D.

University of Glasgow, 1450.

Chancellor, Duke of Montrose, K.T.; *Vice-Chanc.*, The Principal; *Rector*, Earl of Derby; *Dean of Faculties*, Sir Thos. E. Colebrooke, Bart., M.P.; *Principal*, Thos. Barclay, D.D.; *Rep. in Parl.*, Edward S. Gordon; *Clerk and Sec.*, Rev. Duncan H. Weir, D.D.

PROFESSORS.

Humanity, George G. Ramsay, M.A.
Greek, Edmund Law Lushington, M.A.
Mathematics, Hugh Blackburn, M.A.
Civil Eng. & Mechanics, Wm. J. M. Rankine, LL.D.
Logic, John Veitch, M.A.
Moral Philosophy, Edward Caird, B.A.
Natural Philosophy, Sir William Thomson, LL.D.
English Language and Literature, J. Nichol, B.A.
Astronomy, Robert Grant, LL.D.
Divinity, John Caird, D.D.
Church History, Thomas T. Jackson, D.D.
Biblical Criticism, W. P. Dickson, D.D.
Oriental Languages, Rev. D. H Weir, D.D.
Law of Scotland, R. Berry, M.A.
Conveyancing, James Roberton, LL.D.
Materia Medica, J. B. Cowan, M.D.
Chemistry, Thomas Anderson, M.D.
Surgery, George H. B. Macleod, M.D.
Practice of Medicine, William T. Gairdner, M.D.
Midwifery, William Leishman, M.D.
Anatomy, Allen Thomson, M.D.
Botany, Alexander Dickson, M.D.
Institutes of Medicine, A. Buchanan, M. D.
Forensic Medicine, Harry Rainy, M.D.
Natural History, John Young, M.D.
Waltonian Lec. Eye, Thomas Reid, M.D.
Keeper of Hunterian Museum, Prof. Young, M.D.
Librarian, R. B. Spears.
Clerk of Senate, Professor Weir, D.D.
Registrar, T. Moir.

University of Edinburgh, 1582.

Chancellor, John Inglis, Lord Justice General, D.C.L. LL.D.; *Rector*, Jas. Moncreiff, Lord Justice Clerk, LL.D.; *Vice Chanc. and Principal*, Sir A. Grant, LL.D., &c., &c.; *Rep. in Parl.*, Lyon Playfair, C.B., LL.D., F.R.S., &c., &c.; *Sec. of Sen.*, Prof. Wilson.

PROFESSORS.—*Faculty of Arts.*

Latin, William Y. Sellar, LL.D.
Greek, John Stuart Blackie, M.A.
Mathematics, Philip Kelland, M.A., F.R.S.
Logic, Rev. Alexander Campbell Fraser, M.A.
Moral Phil. & Polit. Economy, H. Calderwood, LL.D.
Natural Philosophy, Peter Guthrie Tait, M.A.
Rhetoric, David Masson, M.A.
Universal History, Cosmo Innes, M.A.
Astronomy, Charles Piazzi Smyth, F.R.S.
Agriculture, John Wilson, F.R.S.E.
Music, Herbert S. Oakeley, M.A.
Sanskrit, Theodor Aufrecht, M.A.
Engineering, Fleeming Jenkin, F.R.S.

Faculty of Divinity.

Divinity, Thomas Jackson Crawford, D.D.
Church History, William Stevenson, D.D.
Hebrew, David Liston, M.A.
Biblical Criticism, A. H. Charteris, D.D.

Faculty of Law.

Public Law, James Lorimer, M.A.
Civil Law, James Muirhead.
Scotch Law, Norman McPherson, LL.D.
Conveyancing, James Stuart Tytler.
Constitutional Law & History, Cosmo Innes, M.A.

Faculty of Medicine.

Materia Medica, Robert Christison, M.D., D.C.L.
Medical Police, Douglas Maclagan, M.D.
Chemistry, Alex. Crum Brown, M.D.
Surgery, James Spence.
Practice of Physic, Thomas Laycock, M.D.
Anatomy, William Turner, M.B.
Pathology, William Rutherford Sanders, M.D.
Midwifery, Alexander Simpson, M.D.
Clinical Surgery, Joseph Lister, M.B.
Botany, John Hutton Balfour, M.A., M.D., F.R.S.
Institutes of Medicine, J. H. Bennett, M.D.
Natural History, Geo. Wyville Thomson, M.D.

The Scottish Universities, instead of being made up of several colleges, all forming one university, consist of several distinct Faculties independent of each other, in which there are professors appointed to teach the different subjects which go to constitute the Faculty. Thus there is a Faculty of theology, another of medicine, another of law, and another of arts. These are quite distinct from each other, and manage their own internal arrangements, subject to the revision of the Senatus Academicus and the University Court. In like manner each professor in each Faculty manages his own class or classes independently of the other members of his Faculty, but subject to certain general rules applicable to the Faculty to which he belongs. He divides the students who attend his lectures into two or three classes, and delivers his two lectures or his three lectures each day in his class-room, and there the relation between professor and student ceases, and they have nothing more to do with each other until they meet again at the next lecture hour.

The student does not live in college, or hall subject to university supervision, as in Oxford and Cambridge. He has his own lodgings in the town, is his own master in all matters, and the university takes no cognizance of his existence beyond its walls. There is no matriculation examination, and no necessity to follow any particular course of study. A fixed attendance at the lectures of certain professors, and a certificate from them to the effect that the student has attended their classes, is necessary for graduation; but beyond this there is absolute freedom of choice to the students to come at any age, to stay any length of time, to work or not to work, to belong to any religious denomination or no denomination. In short there is no interference of any kind with the students' lives. They pay their annual fees, and conduct themselves with propriety, within the university precincts, and beyond that they are perfectly independent of the university. Throughout the country we found indications of a desire to modify in some degree this freedom of action on the part of the universities and the students attending, and to introduce restrictions with regard to the age at which the students should be admitted, and with regard to the amount of knowledge which they should possess before admission.

There is great dissatisfaction existing among the teachers of the Burgh and Middle-class schools, occasioned by the conviction on their minds that the universities are interfering with their work. They consider that the classical and mathematical professors "poached" upon the schools by allowing students to attend their classes while still of school age, and by drilling these students in Greek and Latin grammer, or in the elements of Euclid and algebra, when they ought to have learned those things at school. This is no new subject of contention between the schools and the universities. As early as 1656 the masters of the Edinburgh High School complained bitterly of the interference of the Greek and Latin classes at the university with the school, and it was agreed by the Town-Council that "two of their number should wait upon the

College of Justice to acquaint them that it has been moved to abolish the humanity class in the University, as prejudical not only to the Grammar School, but to the College itself, and proposing that the salary of the professor should be employed some other way for advancing learning." The College of Justice, without hesitation, refused to listen to such a recommendation. In 1772, the other side of the question was raised, and a remonstrance was laid before the patrons of the High School by the principal and professors of the university against the introduction of Greek into the school for the first time, on the ground that by this innovation an encroachment was made on the province of the university.

Some of the professors in the different universities take the same view upon the subject as the teachers, and hold that some alteration should be made in the ordinances of the universities by which a line might be drawn between university work and school work. Among them Professor Blackie, of Edinburgh University, holds:—

> The University should begin where the Burgh school ends; and transition from the one to the other should take place, as in Prussia, only on a regular certificate of fitness. The want of this graduated system is one of the greatest evils in the present upper education of Scotland.

Professor Campbell, of St. Andrews, writes:—

> The Burgh Schools should be the natural feeders of the Universities; and a certificate of having passed the final examination at the Burgh school in English, arithmetic, Euclid, and Latin and Greek, might perhaps be a fitting substitute for a University matriculation examination.

Professor Geddes, of Aberdeen, considers—

> That it would be desirable to introduce something of the nature of the *Abiturienten-Examen*, as practiced in the Gymnasia of Germany, whereby the rector of a Burgh school, in conjunction with one of the inspectors, should have the power of awarding, upon a well understood programme, certificates of fitness to proceed to the University, which certificates should entitle the students possessing them to the position of public students, and therefore capable of becoming candidates for the degree in Arts. The effect of such an arrangement would be, that the school standard would be raised by the best possible means; that it would be the *interest* of the schools, as it is in Germany, to retain their pupils as long a time as possible, in order to mature and perfect their attainments, and that the schools would be placed in a highly honorable position with reference to the University. What facilities should be given to students other than those from Burgh schools to attain the same position, so as to be distinct from private students, who should have no right or claim to the degree, is another matter, but I have no doubt that such facilities could easily be devised. When a system of so-called "certificates of maturity" is devised under proper checks, and on a fair programme of scholarship, there will be no difficulty in reducing the curriculum of the university to a three years' course, compensation being of course given to those chairs that would be affected by such an arrangement.

On the other hand, Professor Sellar, of Edinburgh, is opposed to any more stringent examination than that allowed by the 14th ordinance of the University Commissioners. By this ordinance, it is enjoined, that students entering the university, may, by passing a satisfactory examination, dispense with attendance in the junior classes, and by this means they may complete their curriculum in three winter sessions instead of four. His objection to an entrance examination comes to this. If such an examination be a *bona fide* stringent examination, a number of young men above eighteen years of age, who now come to the universities from Normal schools and remote country districts would be excluded, and if it were not a stringent examination, sharp boys of fourteen or fifteen years of age from a good school would easily pass it. In answer to the question bearing on this point he says:—

> I do not see that the Burgh schools can be placed in any direct relation to the Universities. At present the Universities draw less than half of their numbers from the Burgh schools and other Public schools, such as the Edinburgh Academy, the Dollar Institution, the Madras College at St. Andrews, etc. They draw also a considerable portion, especially in the junior classes, from the parish schools and other primary schools in the country districts. But indirectly, the Burgh schools and the Universities may do much to assist one another. The Universities may look to the Burgh schools, when reformed and reorganized, to send up a class of students better trained than the majority of those who come from other places of education; and the introduction of even a small number of such students would have a most beneficial influence in raising the standard of attainment among the mass. Again, the prospect of attaining bursaries and other university distinctions might be expected to act as a great stimulus both to teachers and scholars, and success in these competitions to raise the reputation of the best schools, and thereby improve the positon of the teachers. It is to be regretted that in the universities of Edinburgh and Glasgow there are, at present, very few bursaries awarded according to merit. The competition for open bursaries at Aberdeen and St. Andrews has an excellent influence on the schools in connection with those Universities. The ordinance of the University Commissioners, in accordance with which students entering the University may, on passing a satisfactory examination dispense with attendance on the junior Latin, Greek and Mathematical classes and thereby complete their curriculum in two years and a half, is also calculated to benefit the Burgh schools. In the University of Edinburgh, a considerable number avail themselves of this privilege; and a much larger number may be expected to do so, both in the Edinburgh and the other Universities, when the schools are put on a better footing. It aught to become the general rule for students who have attended a Burgh school for five or six years, to be able to enter at once the senior classes in Latin, Greek and mathematics, and to finish their University course in two years and a half; and parents who have the opportunity of sending their sons to a good school, may be expected to see the advantage of keeping them a year or two longer there than they do at present. The Universities should, I think, annually publish a list of the successful candidates in this examination, adding the names of the schools at which they have been educated. It is sometimes proposed, with a view of doing more justice to the Public schools that the junior classes in the University should be abolished, or that all students on entering the University should pass a matriculation examination. It is urged that these junior classes maintain themselves by "poaching on the schools." A more exact knowledge of the composition of these classes would very much modify these statements. The large majority attending these classes would get no University education at all if they were abolished. As a proof of this, it may be mentioned that the average age of the students attending the Junior Humanity Class in the University of Edinburgh during the present session is between nineteen and twenty,—nearer twenty than nineteen. Out of the whole number of one hundred and sixty attending the class ninety-nine are above the age of eighteen. It certainly is not desirable that they should continue at school, or go to a Burgh school for the first time, at that age. Many of them have taught themselves, or received their education in remote country districts. A considerable number of men of real ability come from the Normal schools, where they have had no opportunity of making much progress in Latin and Greek. Many of these would be deterred from coming to the University by the prospect of an entrance examination, in which, if they failed,

they would probably have to abandon all thoughts of preparing themselves for a University career, being too old to enter a good school, and too poor to employ a private tutor. If the standard of the examination were fixed so as not to exclude or deter the self-taught, or those coming from remote country districts, it would not be too high to exclude a moderately sharp boy of fourteen or fifteen from the Edinburgh High School or New Academy. Many of the poorer students from the Parish schools or Normal schools, who enter the junior classes at a comparatively late period in life, make great progress, and in their second year hold their own against the best students of the senior class. The highest honors in my senior classes, both in St. Andrews and Edinburgh, have often been carried off by young men of energy and ability, who had entered the junior class with few previous advantages, and who had by industry in their first session and first summer vacation, qualified themselves to compete successfully with scholars from the first schools in Scotland. The Burgh schools should aim at preparing their pupils for entering the senior classes in Latin, Greek, and mathematics. To those who pass this entrance examination, the University course is much simplified. They can, without any strain upon them, but, with moderate industry, during their three sessions and two summers, obtain the degree of M. A., in two years and a-half. For parents who can send their sons to a good Burgh school, this is the object to aim at. With the improvement of the Burgh schools, the junior classes in the Universities may be expected to fall off considerably in numbers; but they should continue to exist open to all who, in spite of early disadvantages, wish to raise themselves in mental cultivation, or social position through the means of a University education.

We have returns from eight hundred and eighty two students in the Latin, Greek, and mathematical classes in the Universities of Edinburgh, Glasgow and St. Andrews, and of the junior Latin and Greek classes in the University of Aberdeen, for the session 1866–67, and from these returns the social position of the students attending the Scottish Universities may be accurately judged.

From the schedules of these students we find that the answers to the questions relating to the profession or occupation of their fathers may be divided into the eight following heads:—

CLASSES.	Aberdeen.	Edinburgh	Glasgow.	St. Andrews.	Total.	Per Cent.
I. Professional,..........	34	104	108	29	275	31.2
II. Commercial,..........	11	50	76	9	146	16.6
III. Agricultural,.........	37	54	60	11	162	18.3
IV. Shopkeeping,..........	3	12	13	1	29	3.3
V. Artisans & skl'd lab'rs,	12	57	65	9	143	16.2
VI. Laborers,............	3	10	15	1	29	3.3
VII. Indefinite & Sundries,	7	17	13	1	38	4.3
VIII. Profession not given,..	11	12	24	13	60	6.8
TOTAL,.......	118	316	374	74	882	100

These returns are corroborated by those furnished by Professor Blackie. They show, beyond all doubt, that the Scottish Universities are essentially national; that their advantages are not confined to a class as in England, and, to a very great extent, in Ireland; but that almost every grade in the social scale is represented, from the highest to the very lowest.*

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* In the course of the inquiry, the son of a shepherd in the West Highlands called upon us and told us of his circumstances. His father had £20 a year of wages, besides his house, cow's grass and croft. The lad who was twenty-two years of age, had gone from the Parochial school in his native parish in the West Highlands to the High School in Inverness, and from there he had come to the

Of the eight hundred and eighty-two students attending the Universities, there are no less than twenty-nine sons of common laborers; and 16·2 per cent. of the whole number of students belong to that class who live by skilled labor and artisan work. Farmers, ministers, and merchants' sons are more numerous than any other classes. One hundred and twenty-five of the students are the sons of farmers; one hundred and eleven are the sons of ministers; and ninety-four are the sons of merchants; or 37·4 per cent. of the whole number of students. So in the returns from Professor Blackie's classes, extending over a period of six years, it appears that out of one thousand two hundred and twelve students, one hundred and seventy-five are sons of farmers, one hundred and ninety-nine are sons of ministers, and seventy-nine are sons of merchants, or also 37 per cent. of the total number. Many of those students are the sons of small farmers living at a distance from any Burgh or Middle-class schools; or of ministers in remote parishes, with nothing but the Parochial school in which to get their education; or of small general merchants living in little villages in the Highlands, and entirely educated in the Parochial or Free Church schools.

1. Those educated at the New Grammar School.
2. do. do. any other Burgh School.
3. do. do. Parochial schools in Aberdeen, Banff, and Moray.
4. do. do. in any Public school (not being a Burgh school or Parochial school in one of the three counties).
5. do. do. Private schools or other places of education.

And from these returns it appears that out of 670 students, 318 came from the two first classes of schools, and 352 from the others. In like manner, out of 764 students attending the arts and mathematical classes in Edinburgh, Glasgow, and St. Andrews Universities, it appears from the tables in the Appendix that only 35, 46, and 47 per cent., at the respective universities, have been educated at Burgh and Middle-class schools, the remainer having come to the universities from Parochial or Free Church schools, or having been educated out of Scotland, or by private means. These results authoritatively prove that the proportion of students coming from the Burgh and Middle-class schools to the universities is comparatively small, and in no case does it reach half the number of students who matriculate each year at the several universities.

From tables carefully prepared, it appears that sixteen, seventeen, and eighteen are the ages at which the majority of students come to the *junior* classes. There are no students under fourteen years of age, and nine only out of 459 are under fifteen. Eight per cent. are fifteen, nineteen per cent. are sixteen, eighteen per cent. are seventeen, and ten per cent. are eighteen. These tables are substantially corroborated by the

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University of Edinburgh. He spent the winter session at College, lodging along with another student at 3s. 6d. per week. His whole winter expenses amounted to £22; and he earned the greater part of this by teaching a school in summer in a remote part of the Highlands. It was also related to us as an authentic fact, that the son of a well-known Dumfries beggar attended the late Professor Pillans' classes, and was a diligent student.

returns from Professor Blackie's Greek classes, extending over a period of six years. During these years it appears that five students have attended the Greek classes who were only thirteen years of age; two per cent. were fourteen, and nine per cent. were fifteen. In the smaller area of a single class of Logic, Metaphysics, and English literature at St. Andrews, very similar results are obtained, seven per cent. being fifteen years of age, twenty-three per cent. sixteen, eleven per cent. seventeen, and twenty per cent. eighteen. Such are the main statistical facts to be learned from these returns. But it is also to be observed that there is comparatively little difference between the ages of students at the senior and at the junior classes. There are nearly as many very young men at the senior classes as at the junior, and almost as many older men at the junior as at the senior classes, as may be seen from the following tables of the number of students in the senior and junior classes, arranged according to three periods of age.

Numbers of students in the Senior and Junior Classes, also in the three periods of Age of 882 *students in the four Universities, and* 1,212 *under Prof. Blackie.*

AGES.	Numbers in Senior and Junior Classes.							
	The Four Universities.				Professor Blackie.			
	Senior.	Junior.	Together	Per Cent.	Senior.	Junior.	Together	Per Cent.
19 and under,.....	234	307	541	61.3	386	421	807	66.6
20–24 inclusive, ..	153	118	271	30.7	152	165	317	26.1
25 and above,.....	36	34	70	8.0	35	53	88	7.3
TOTAL,...	423	459	882	100.0	573	639	1,212	100.0

From these returns it appears that sixteen, seventeen, and eighteen are the ages at which a majority of the students enter the universities; a small proportion are rather younger, but 33 per cent. are at or above twenty years of age. They throw no light on the problem of limitations —the line at which school age should end, and the university age begin. At seventeen the universities interfere with the schools, but on the other hand, the schools interfere with the universities, by educating nearly as many scholars of that age and above, as the universities educate under that age.

The instruction given in the Junior classes of the four universities,[*] as shown in the Report of the Commissioners, does not exceed in quality or advancement, the work done in the Senior classes of the Burgher Schools, Academies, and High Schools.

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[*] In Latin, the books read at Aberdeen are Cicero (*two Orations*), Horace (756 lines of *Odes*, and 867 of *Satires*), Juvenal (344 lines), Livy (8 chapters of B. III., and 24 chapters of B. VIII) Ovid (Faste 947 lines), and Latin Composition (once a week); Edinburgh, Cicero (two orations), Horace (Odes and Satires each one book), Virgil, (two books of Georgics or Æneid), Tacitus (half of Agricola or Germania), and at Glasgow and St. Andrews the amount read is about the same.

In Greek, the authors read vary, but the amount is about the same, for instance at Edinburgh —Edward First, *Greek Reader*, Homer (*Odessey*, two books), Zenophon (Memorabilia), Clyde's *Greek Syntax*, Greek Conversation (daily), Private Reading (by an average of 15 of the class).

In the Mathematical Classes, Geometry (in either Euclid or Playfair, Books, I–VI), Algebra (up to Quadrates, and to the extent of Todhunter's School Treatise), Trigonometry in the Elementary Treatises (Todhunter, or Galraith).

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The following extracts are from a Paper by Ellis A. Davidson, "on *Industrial and Scientific Education as exemplified in the Paris International Exhibition of* 1866," read before the Society of Arts in 1867:—

On the continent, under the heads of "Gewerb-Schulen," "Real-Schulen," and "Ecoles Polytechniques," institutions for practical studies have been in operation for many years past, and it is proposed to give in this paper a brief account of some of the results obtained, as exemplified in the Paris Exhibition.

In the schools referred to, the studies are, as their names imply, of a real or practical character. The students learn, not only to make a drawing of a machine, but to prepare the working drawings from which a machine may be constructed; and, in many cases, to make the objects from the drawings. This must tend to show them the importance of accurate measurement and correct delineation. They learn, not only that the drawing must be exact, or it would be useless, but in turning or putting together the various parts, they do so with more readiness from having studied the construction on paper.

The collective exhibition of the Austrian Imperial Ministry of State contained numerous works and models, illustrating the courses of various studies carried on in this group of schools. The models will be referred to further on, and the scientific drawings mentioned here. The leading set of studies shows an excellent mode of combining several elementary manual processes with scientific instruction, thus avoiding a difficulty often experienced when instructing persons whose minds are in advance of their hands—who can "think out" a subject, but who can not execute it. Many practical teachers will have observed the diffidence with which a student, who has been allowed to continue his geometrical drawing in pencil for a long period, begins to work in ink, and how frequently a drawing, scientifically correct, is spoiled by the tinting, either with the draw-pen or the brush. The system pursued in the Austrian schools seems calculated to overcome the manual difficulties contemporaneously with the elementary scientific instruction. When the geometrical figures have been correctly done in pencil, they are from the first inked, great neatness of line and accuracy of intersection being insisted upon. They are then colored with flat washes, or sectioned over variously with the draw-pen; the inscribed and containing figures being tinted with complementary colors. Where parts of circles cover each other, each circle is colored with a primary, so that the part overlapped becomes of a secondary color, &c. This system is thoroughly worked out, and thus, at the same time, the student is learning practical geometry, shading with the pen, the use of the brush, and elementary coloring; so that, by the time he reaches the studies of mechanical or architectural construction, he is able to draw and color with tolerable correctness.

In these studies, too, the shading is scientifically worked out; all the shadows on the sphere are projected in circles, each circle separately tinted, according to its position, and so accurately, that at but a short distance the separate circles are not observable, but a beautiful rotundity of form is the result.

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Union of the Grand Duchy of Hesse (Grossherzoglich Hessischer Gewerb-Verein), being the works of the pupils in schools for workmen of the duchy. These sets of works were the more valuable as it was evident that they had not been specially executed for exhibition, but seemed to have been taken from the daily studies of the pupils. They indicated, as indeed did all the works of the continental schools, an absolute connection between the scientific and artistic studies; and all the science students seem to learn free-hand and ornamental drawing and shading, &c., as well as mechanical drawing.

The whole subject of technical drawing, whilst it has been much neglected in this country, has been thoroughly systematized on the Continent; and the foreign schools possess completely organized sets of examples, combining the study of drawing with that of construction, adapted to the various branches of industry, of which we are very deficient. Thus there was exhibited by Wilhelm Beyerle, executed by the Gewerb-Verein, a work in eight parts, quarto-imperial, with folding plates, called "Pattern drawing for artisans, adapted for the various trades;" each part containing numerous plates of working drawings, to scale, of the work of the engineer, builder, tin-plate worker, bricklayer and masons, cabinet-maker, upholsterer, slater, and staircase builder, in stone, wood, and iron. These plates, which are exceedingly good and are accompanied by complete text, would prove most useful in our science classes. Another set by the same publisher, designed by Hekter Rössler is called "copies for workmen's schools." It is in seven parts and contains geometrical construction, descriptive geometry, stonework, roofs and joints, stoves and heating apparatus, locksmiths' and cabinet-makers' work.

Still better, because larger and bolder, are the sets of diagrams and examples exhibited by the Royal Commission for parish workmen's schools in Wurtemberg. These are large (royal) lithographs of the most practical character, and all drawn on the scientific principles adapted for almost every branch of construction and ornamental work, with details to a larger scale, and broadly colored. The work is issued in parts of 48 plates and one sheet of text to each. Works in plaster, metals, and wood, by pupils of forty-four of the parish workmen's schools of Wurtemberg, were exhibited. These consisted of models of machines, buildings, roofs, scientific apparatus, furniture, &c., either to the real size or to a scale, whilst in the art division there were fine drawings from the round, plaster casts of ornament and figure, chased and hammered metal work, carving in wood, &c, all exceedingly good in character, and all showing the results of a sound system of technical education.

From the printed documents it seems that the first step towards the establishment of the series of technical and workmen's schools in Wurtemberg was made in 1818, by the introduction of drawing-classes into Sunday-schools, already established, for youths above fourteen years, who had left the primary schools.

Steps were afterwards taken by the Board of Education for extending the principle, but in 1848, the actual organization of working men's schools, as they are at present, was inaugurated by the then newly created Board of Trade and Industry, which was charged with the care of providing good instruction for youths engaged in trades and workshops. To effect this purpose, a special commission was appointed; but this commission had not the legal power to *order* parishes to establish the schools required, but could only proceed by way of *recommendation* and by treating with such parishes as had shown interest in the subject. They were, however, much aided in their efforts by the circumstance that pecuniary means were liberally granted by the State in the form of subsidies to such schools as had been organized in conformity with the conditions fixed by the commission—the sums granted in this way amounting in general to half the expenditure made by the parishes themselves for the support of the said schools. The conditions chiefly insisted upon by the commission in the organization of the schools were, in the first place, the voluntary principle with respect to the frequenting of the schools; and the demand that fees should be paid by the scholars—a demand which, however small the fee might be, was considered of importance with regard to the well-known fact, that what is paid for is much more appreciated than what is obtained gratuitously.

The principal task of the commission is to take measures that suitable localities are selected, and that all necessary appliances for education, such as good books, models, diagrams, &c., are provided for the schools; to control the appointment of the managing bodies and inspectors, as well as the training up of good teachers of drawing, &c. The commission did not, however, deem it advisable to organize all the schools after a uniform system, but had regard to the various local circumstances and necessities. The 101 schools, numbering about 8,000 scholars, present, therefore, very different phases of development.

The four largest schools in the towns of Heilbronn, Stuttgart, Ulm, and Reutlingen, containing unitedly 2,500 pupils, have Sunday and evening classes offering all the different branches of instruction for mechanics, tradesmen, and young merchants; whilst the drawing-classes may be frequented throughout the day. At Stuttgart and Reutlingen there are also classes for young females who have left the primary schools, and which are attended by 130 scholars.

Thirteen schools established in the towns of Esslingen, Ludwigsburg, Gmund, Hall, Ravensburg, Biberach, Rottenburg, Canstatt, Tübingen, Geislingen, Ellwangen, Calw, and Ebingen, with conjointly 1,600 scholars, have likewise Sunday and evening classes, as well as drawing-classes, open throughout the day, but no mercantile classes. There are, moreover, 60 towns and 12 villages, having together 72 schools, and about 3,500 scholars, with regular classes on Sundays and on the evenings of the week. Of these five schools, numbering together about 250 scholars, have Sunday classes only. Three schools, with about 100 scholars, have Sunday classes combining scientific instruction with drawing; whilst four others, with about 100 scholars, confine themselves entirely to drawing.

In the Swiss department of the Paris Exhibition were several excellent works, illustrating the course of studies in architecture, engineering, and surveying. No novel features were, however, presented, the works being based on, or copied from, the German system.

Years of observation, study, and practical teaching, have shown me that, however good the diagrams and examples used may be, no real conception of forms can be obtained without the aid of solid models; for even though the pupils thoroughly understand the diagram, the form there given is only such as would be correct in *one* position; and in projection, it is in some cases almost impossible from that one view to form an idea of what shape may be presented by the smallest rotation, depression or elevation of the model. In this projection differs from perspective, the one rendering the object as it *is*, the other as it *appears;* and here the imagination or observation generally offers some assistance; but in projection it is not so; point by point has to be obtained, which, when united by lines, develop forms which to the student are often surprising; and if the subject has only been worked out on the blackboard, and followed line by line by the students, they get the diagram *copied*, but they have not had the lesson which might have been given by the aid of a block or two of wood or a sheet of cardboard. This is very observable in that branch of mechanical drawing called development of surfaces. For instance, let it be required to teach a class of artisans to construct of sheet iron a pipe with two elbow-joints; these students would most likely have been accustomed to cut, file, and alter the separate pieces of piping so as to get the joints at the angles: and it would be difficult to convince them that the flat metal might at once be cut on properly constructed curves, so that the parts, on being rolled into cylindrical form, would fit each other at the required angles, without any waste of metal or time. But if a cardboard model has been prepared and exhibited in the course of the lesson, flat, and when the blackboard-construction has been followed, separated into three pieces and then placed in the required form, the interest of the pupils will not only be kept up, but they will be encouraged to think out similar developments adapted to their respective trades. Again, in the development of a cylinder penetrating a square prism, the forms of the aperture in the prism and the projecting portions of the cylinder are so different from what the uninitiated might suppose, that ocular demonstration becomes necessary, and the scientific construction of the curves may save the workman a great amount of time and labor.

The most complete collection of apparatus for teaching the sciences in connection with the mechanical arts was that exhibited by the *Polytechnisches Arbeits Institut und Machinenfabrik* in Darmstadt, the author of which is Professor Schröder. The first part of the series consists of models for teaching descriptive geometry, penetrations and sections of solids, and developments of surfaces. These models are placed on wooden planes at right-angles to each other, thus realizing the vertical and horizontal planes of projection—the plans and elevations being drawn under and at the back of the objects. These models are not new to this country; a set of them was exhibited in London some years ago, and they have now been admirably reproduced by Messrs. A. & J. Rigg, of Chester. The great accuracy of their construction, and their number, renders the set necessarily expensive; but it is to be hoped that some aid or encouragement may at no distant time be given for the production of a selection of these models of a larger size, and in a somewhat simplified form, so that they may become more generally known and used.

The same Institute also exhibited a set of mechanical combinations and models, designed by Professors Retenbacher and Weisbach; they are made principally of iron, painted and bright, and are of the average height of eighteen inches; amongst them are the various escapements, shafts for the transmission of motion at various angles, turbines, water-wheels, various systems of spur, cog, annular, crown, face, and bevel wheels; plummer blocks, square, and elliptical wheels and cams, the various modes of coupling and disengaging shafts, Watt's parallelogram and a sectional model of part of a steam-engine, showing the interior of the cylinder, valves, the action of the governor, &c.

MILITARY SYSTEM AND MILITARY INSTRUCTION IN SWITZERLAND.

[Extract from "A Plan for Military Education in Massachusetts." By E. Dwight.]

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1. OUTLINE OF MILITARY SYSTEM.

IN the year 1847 seven of the cantons of the Swiss Republic seceded from the Confederacy. Among them were the three forest cantons, the original nucleus around which the whole Republic had been formed, the birth-place of William Tell and Arnold, of Winkelreid. The seceders held the strongest military position in Europe, but the loyal cantons put on foot an army of 100,000 men, well armed, drilled, and officered. The city of Friburg was taken, and in thirty days from the first proclamation of the commanding general the war was ended and order was restored.

In 1856, a quarrel having arisen with the king of Prussia, Switzerland placed on foot an army of 200,000 men well provided with artillery Thus the military system of Switzerland has proved itself effective; and as there is no standing army whatever, and the state is a confederacy of cantons under democratic forms of government, we may find something in their system applicable to our own case.

Switzerland covers an area of about 15,000 square miles, equal to that of Vermont and New Hampshire together, of which a large portion is covered by lakes, forests, mountains, ice and snow, leaving only thirty-one per cent of the land fit for agricultural purposes, not including the mountain pastures. Possessing a population of only two millions and a half of people, it is surrounded by military powers of the first class, and must needs be strong to be free. France, Austria, and Prussia are not always as good friends as they are near neighbors, and the little Republic must ever be ready to ward a blow and return it. The constitution of Switzerland declares that every citizen is a soldier. "Tout Suisse est soldat." Military service is required between the ages of twenty and forty-four. The substitution of one man for another is forbidden, but exemption from service is allowed to certain persons, such as officers of the government and of public institutions, clergymen, students of theology, members of the police, pilots and others. In some cases a man is excused from the more active service, but required to pass through the regular course of military instruction and to serve in the reserve of the army when called upon. Such are the only son, or one of the sons, of a widow; or of a widower, provided the father be over sixty years old, and the son necessary to his support; a widower, the father of children in their minority, who has no resources except the work of his own hands; one of two or more sons when they make common household with their parents, if the family could not be supported by other brothers not subject to service; married men, or widowers having at least two children. These exceptions do not apply to officers.

The Council of State of each canton appoints yearly a "Commission on Furlough and Discharge," consisting of ten members, of whom two are medical men, two officers, one a corporal, one a soldier, and the others members of the council. The commission acts under oath; grants exemption for physical defects or want of height; or passes men from the active service to the reserve. A man who at the age of twenty has not attained the height of five feet and one inch can be furloughed for two years; and if, at the end of the third year, he has not reached this height, discharged from all service. Men who have been convicted of disgraceful crimes, or have suffered penal sentence, are declared unworthy of bearing arms; and if once deprived of their civil rights can not hold a commission.

The militia is divided into the federal contingent and the landwehr. The federal contingent consists—*First*, of the elite, which includes three per cent of the whole population, taken from those between the ages of twenty and thirty-four. The time of service in the elite is eight years. *Second*, the reserve, being one and a half per cent of the population and not above the age of forty. The landwehr includes men up to the age of forty-four. The landsturm, or *levy en masse*, consists of the whole male population, capable of bearing arms, between the ages of twenty and fifty, and not included in the classes before described. The male population of Switzerland is 1,140,000, of which thirty-seven per cent, or 422,000, are between twenty and forty-four years of age. One-fourth of these are exempt or found unfit for service, leaving 316,000 perfectly fit. In 1853 the number of men required for the federal contingent was 104,354,* but according to official statements the number of men in all branches of the service, well armed and instructed, amounted to 125,126. The excess of men supplied, over those required, arose from the public spirit and general desire for military instruction existing among the people. Add to these 125,000 the landwehr, which numbered 150,000, and we have a total of 275,000 effective men, well armed, drilled, and officered.

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* Infantry, including Rifles, 89,888; Artillery, 10,866; Cavalry, 2,869; Engineers, 1,580.

The federal army is composed of the following arms: engineers, including sappers and pontoniers; artillery, including rocket batteries; cavalry, riflemen, light infantry, and infantry. There is besides a medical corps for the service of the ambulances and hospitals. But as uninstructed men are of little or no value, the federal law upon military organization provides that the cantons shall see to it that the infantry of their contingent is completely instructed according to the federal rules, and though the application of this principle in its details is left to each canton, yet the following rules are laid down: recruits are not received into the federal elite until they have gone through a complete course of instruction which lasts at least twenty-eight days for infantry, and thirty-five days for light infantry. The confederation charges itself with the instruction of the engineers, artillery, cavalry, and riflemen. This course lasts twenty-eight days for riflemen and forty-two days for the three other arms, but these recruits have previously been drilled in the school of the soldier by their cantons, and the riflemen have received preparatory instruction in firing at a mark.

In the larger cantons—that of Zurich for instance—divisions of recruits in succession are put into barracks and well drilled practically and theoretically for fifty-six days, either consecutively or at two periods of the same year, as may best suit the youths. In the second year after entering the elite, and for each year afterwards, the infantry is called out for drill during three days, by half battalions at least, with preparatory drill of three days for the "cadres,"* the commissioned and non-commissioned officers forming skeleton corps. Days of entry into service are not counted as days of drill, and in case of interruption the days of drill are increased by two days. The reserve is called out for drill during two days of each year, with a preparatory drill of one day for the "cadres."

In the corps of engineers, artillery, cavalry, and riflemen, the elite is called out every alternate year for the engineers and artillery, and every year for the cavalry and rifles. The drill lasts four days for the "cadre of engineers and artillery, and immediately after ten days for the cadres and companies united, or twelve days for both together. For the cavalry the drill lasts seven days for dragoons and four days for "guides;" for riflemen, two days for the cadres, and immediately afterwards four days for cadres and companies united. The reserve is called out for a drill of half the length of that of the elite.

To complete the instruction of the soldier the cantons in their turn send their men yearly to the federal camps where the troops to the number of three or four thousand, are kept under canvas for two weeks. Larger numbers of men, forming bodies of 5.000 and upwards, are also mustered and cantoned in the villages, and during several days exercised in the grand movements and manœuvres of war, chiefly for the instruction of commanders and officers of the staff.

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* The officers, non-commissioned officers, and corporals, constitute what is called the "cadre.",

To keep up the efficiency of every department of the service the whole is subjected to the yearly inspection of colonels of the federal staff appointed by the central government. The inspection of infantry is confided to ten colonels who serve for three years. There is also an inspector in each of the arms of engineers and artillery, the latter having under his direction an administrator of materiel charged with the inspection and surveillance of all the materiel of the confederation. This administrator directs and superintends the workmen employed in the factories of the confederation for the manufacture of powder and percussion caps, as well as arms, gun-carriages, &c. The colonel of cavalry and the colonel of rifles direct all that relates to their respective arms, and recommend the necessary improvements. If these inspectors detect in the contingent of any canton any want of perfection in drill, they have the power to order such additional drill as may bring the men up to the proper standard.

Great care is taken in the instruction and selection of officers. The officers of infantry. up to the grade of major, are appointed by the cantonal authorities; the higher officers by the federal government. But no officers can be appointed to the special arms of engineers, artillery, and cavalry, except such as have gone through a course of instruction at a military school appropriate to each arm. No one can become a non-commissioned officer who has not served at least one year as a soldier, nor a commissioned officer except after two years' service. Candidates for promotion must pass a public examination, before a commission, both in theoretical and practical knowledge. Promotion is given, according to seniority, up to the grade of first lieutenant. Captains are chosen from among the lieutenants without regard to seniority. To be appointed major, eight years' service as an officer is required, of which, at least, two years as captain. For a lieutenant-colonel, ten years' service as officer, of which, at least, four as major of the special arm. For a colonel, twelve years' service as an officer is required, of which, at least, four years as "commandant," or in a higher grade. In the Swiss service there is no higher rank than that of colonel. When a colonel has been appointed commander-in-chief of the army, he receives for the time being, the title of general, which he afterwards retains by courtesy.

SCHOOLS OF INSTRUCTION FOR OFFICERS.

The Federal system of Military Instruction for officers, in 1871, embraced—

I. A Central Military School at Thun, to which all officers appointed to the General Staff repair to be instructed in their duties.

II. A School of Officers at Thun, in which all officers appointed to their respective regiments are instructed in their duties.

III. A School of Cantonal Instruction, held in Basle, to which the infantry instructors resort from every canton to learn their duties, undergo inspection, and preserve a common rule.

IV. A School of Young Officers, held at Solothurn and at St. Gallen, turn by turn, to which the several Cantons send their young officers who have just received their commissions, and to which all candidates for commissions repair for examinations.

V. Comissariat School, to which is joined a Medical and Ambulance School generally, at Thun.

VI. A Shooting School, for officers who give instruction to the Cadet Corps and other organizations in the several Cantons.

To these school organizations with their practical exercises must be added the opportunities afforded by the Cantonal reviews and field manœuvres, to which the young Swiss officer brings much valuable experience in his previous school and cadet drill.

The events of the late French-Prussian war tested the efficiency of the Swiss military organization and instruction. The French declaration was announced in Paris in the afternoon of Friday, July 15, 1870, and responded to by a counter declaration from Berlin on Tuesday, the 19th. But the Federal Council of Switzerland (which lay between the combatants, and might become the first theatre of belligerent operations), was summoned by President Dubs to consider the situation; and within an hour, the Cantons had been regularly summoned to complete their regiments with men, arms, horses, guns, and all stores and tools required for actual service, and five divisions of the Elite (the first, second, sixth, seventh, and ninth), were ordered to assemble in their several Cantons. The first division, under Colonel Egtoff, was to secure the bridge at Basle and occupy the two banks of the Rhine. The first news which the men of Aargau had of the impending war was late on Friday night. By noon on Saturday squads of men were falling into the ranks in front of the town-hall of the cantonal capital—companies were formed—guns were got out—sappers, engineers, and guards were in readiness—officers were at their posts. In the afternoon the first Swiss troops were in march for Basle, and by midnight the first regiment of Aargau were on the bridge; and by Sunday night the first division, under Col, Egtoff, with 8,296 men, and 692 horses, besides the staff and guides; and the second division, under Colonel Salis, with 8,319 men, and 632 men at the same hour had assembled at Basle and held the roads and streams which led to Bonn. By Tuesday night, before the Prussian manifest was known in Bonn, the five divisions of the first Swiss army, with their eleven batteries of artillery mounting 96 field pieces, and a total force of 37,423 men, and 3,541 horses and 104 staff and guides, were under arms and at their respective rendezvous; and the President was authorized by the Council to announce to all concerned, "that any troops belonging to belligerent states, whether regulars or volunteers, who violate the territory of the Swiss nation, will be repelled by force."

Out of the officers whose men were first in the field, the Federal Council placed Colonel Herzog, of the Aargau detachment of the Federal army, in chief command, and by Saturday night the General's head-quarters were established at Alton (the center of the Swiss railways), where he organized his staff, issued his instructions to organize two hospitals, one for wounded men, and the other for horses, and at the same time ordered magazines of stores and clothes to be established in his rear, and the forces to be moved up to the front. All railway companies were ordered to report their stock of engines, carriages, and open wagons, and telegraphic communication was established for night as well as day service, and engineers were sent out to study every pass and point by which an enemy in any strength was likely to enter the territory of Switzerland. When all danger to the Cantons had passed away in the victories of the German arms, Gen. Herzog was directed to raise his camps, and send to their several Cantons their respective troops. Later in the war, when it was authentically known that Bourbaki was moving an army of 150,000 strong, to sweep across the Rhine; and still later, that the Germans meant to push the French, in either whole or part, across the Swiss frontier, and put them out of service for the rest of the war—General Herzog satisfied the President and the Council, and the Minister of War, of the impending danger, and on Thursday, Jan. 19th, the third, fourth, and fifth divisions, with two batteries of mountain guns, well prepared for winter service in a district lying under snow, were ordered out; and in one week from that date, these forces were distributed through the various passes in the Jura, from Basle to Geneva, with orders to repel, or receive—to fight, or feed and lodge, according to the spirit in which the broken detachments of the French army should present themselves. For the enormous number (83,301), who laid down their arms, food and beds were distributed in the Swiss Cantons, by less than 20,000 citizen troops, without the forfeit of a single life. And when their work was done, these citizen soldiers laid aside their arms and uniforms and returned to their shops and industries of various kinds, to earn their daily bread, without forgetting for a moment their civic rights and household duties.

If the occasion had required it, as it did in the war of Secession in 1856, each Canton would have contributed 30 men from every 1,000 inhabitants, to the Elite, and 15 men to every 1,000 to the Reserve; and in case of danger to the Union, every male Switzer, from the age of nineteen to forty-five, not included in either of the above forces, would have obeyed the summons of the national authority for the Landwehr, adding 97,934 to the ranks, besides volunteering above and below the military age, to the number of 100,000 men, who, in case of a defensive war, could have been relied on,—all familiar with military tactics, and accustomed to obey as soldiers, as well as to the use of arms.

According to recent official statistics the strength of the several armies of Switzerland is as follows:

	Elite.	Reserve.	Landwehr.
1. Engineers, ...	900	630	......
2. Artillery, ...	6,513	4,254	......
3. Cavalry, ...	1,937	932	......
4. Carabineers, ...	4,600	2,460	......
5. Infantry, ...	55,994	26,448	......
6. Sanitary Service, ...	144	78	......
Armorers, ...		30	......
Total, ...	70,088	34,832	97,934

The system of recruiting, drilling and brigading, is local—which brings neighbors and friends into camp and field companionship, and inspires a sense of trust and coöperation.

The cost of the reliable military force is as follows:

Cantonal expense, ...	4,508,901 *frs.*
Federal expense, ...	5,486,396
	9,995,297

Contrasted with the cost of education the figures stand thus:

Communal expenses, ...	5,000,000 *frs.*
Cantonal expenses, ...	5,157,756
Federal Polytechnic, ...	287,611
	10,445,367

And for this sum Switzerland makes a near approach to universal education in schools of different grades, adapted to all classes.

MILITARY SYSTEM AND EDUCATION IN RUSSIA.

I. MILITARY SYSTEM.

The Emperor is commander-in-chief of all the forces, by sea and land, assisted by the Staff-Office, the members of which are expert linguists, as well as scientific experienced and military officers. The army is under a Minister of War, assisted by a colleague and a military council. The office of Master of Ordnance is generally filled by a grand prince. The regular force, or army of occupation consists of about 783,000 men, which can be easily swelled to at least 1,200,000, as the whole male population are liable to serve when summoned. The army is mainly recruited by conscription, which falls on the serfs and laboring population, as the nobility, officials, clergy and merchants are exempted. The term of service is twenty years for the guards, twenty two for the line, and twenty-five for the train and military servants. But few pensions are granted to discharged or furloughed soldiers, although veteran soldiers are frequently appointed to situations as doorkeepers, watchmen, overseers, &c., in government establishments and public institutions.

Promotion by seniority, imperial favor, and good conduct on the field. Every officer must be educated and trained to his business, and serve from the lowest to the highest rank. Non-commissioned officers, musicians, assistant veterinary surgeons, head workmen in the military workshops and factories must all be trained for their special duties. A large portion of these classes are the sons of soldiers, who have been surrendered by their parents to the government, who receive them at the age of six or twelve, by special arrangement. They are termed *cantonists.* Among the special military schools of a technological character are, eleven for garrison artillery; three for armories; three for powder mills; three for arsenals; one for riding masters; one for fencing; one for accountants; one for topographical drawing, &c.

II. MILITARY SCHOOL FOR OFFICERS.

The officers of the Russian army obtain their first commission after passing through the Military Schools or Cadet Corps, or if qualified in scientific and other instruction, ascertained by open examination, by serving as privates six months, and as sergeants or ensign two years. Applicants for the Staff Corps, must have served as officers two years, must be recommended by their superior, and have been two years in the Staff School—and there pass an honorable examination in military history and strategy. The following statistics are taken from the *Kalender* of the St. Petersburg Academy, for 1859.

I. Under a Commission or Board of Military Instruction, which reports directly to the Emperor, there are

3	Military Schools of Special Application, viz.:					
	1 The Nicholas Academy of the Staff,	with	22	teachers and	250	scholars.
	1 The Nicholas Upper Engineer School,	"	50	"	126	"
	1 The Michael Artillery School,.......	"	32	"	117	"
1	Page Corps. or College...............	"	41	"	159	"
1	Ensign's School of the Guards,.......	"	31	"	206	"
22	Cadet Corps or Military Colleges,......	"	723	"	7440	"
27			899	"	8,298	"

The Cadet Corps, or Military Schools, receive their pupils young, and impart a general as well as a scientific education, preparatory to entering the Special Schools of Application either for Engineer, or Artillery, and later in years and experience, the Staff School. These Special Military Schools are not surpassed by any of the same class in Europe.

II. Under the Ministry of War there are the following Scientific Establishments and Schools.

22	Military Schools, with..........	326	teachers and	10,000	scholars.
3	Lower or Element. Artillery Schools,	22	"	166	"
1	Topographers' School, with	13	"	140	"
1	Medico-Chirurgical Academy, with	35	"	978	"
	Military Hospitals,..............................			1,020	"
3	Veterinary Schools,............................			12,304	"

The Military Schools are of an elementary and technological character, and are intended to supersede a class of schools known as the *Cantonist* Schools.

The experience of the Crimean War demonstrated to the world, the wise forecast of the Russian government in providing for the thorough scientific and practical training of the officers of her great armies as was confessed by the "*London Times*," in the bitter disappointments of the English people with their own officers.

MILITARY SYSTEM AND EDUCATION OF THE UNITED STATES.

I. MILITARY SYSTEM.

The Constitution of the United States grants to Congress the power "to raise and support armies," "to provide and maintain a navy," "to make rules for the government of the land and naval forces; and to provide for calling forth the militia," as well as "for organizing, arming and disciplining" the same, and for governing such parts of them as may be employed in the service of the United States—reserving to the States, respectively, the appointment of the officers, and the authority of training the militia according to the discipline prescribed by Congress. By the same instrument the President is made commander-in-chief of the army and navy of the United States, and of the militia of the several States when called into actual service of the United States "to execute the laws of the Union, suppress insurrections, and repel invasions."

By law of August, 1789, a department of war, and in 1798, a secretary of the navy is provided to aid the President in the administration of military and naval affairs; and the original rules and articles of war enacted by the Congress of 1776, were continued in force, and in 1806 made the basis of the military code which has since governed all troops mustered into the service of the United States.

In 1790 the rank and file of the regular army was fixed at 1,216 men. In 1796 this force was organized into one corps of artillerists and engineers, whose head-quarters was at West Point, two companies of light dragoons, and four regiments of infantry of eight companies each. This force was increased by additional regiments in the war of 1812, the Indian war in Florida, and the war with Mexico, till in 1861, the army consisted of 14,000 men, stationed in the different forts and garrisons, and mainly on the Indian frontier. In the war of the Rebellion the regular army was increased to 50,000 men.

By act of July 15, 1870, the number of enlisted men was reduced to 30,000 by or before July 1, 1871. On the 20th of October, 1871, the army was composed as follows:

Two regiments of Cavalry,	8,800	enlisted	men.
Five regiments of Artillery,	3.105	"	"
Twenty-five regiments of Infantry,	23,742	"	"
One battalion of Engineers,	314	"	"
Ordnance Department,	444	"	"
West Point Detachment,	202	"	"
Signal Department,	199	"	"
Hospital stewards,	310	"	"
Ordnance Surgeons,	114	"	"
Available Recruits *en route*,	349	"	"
Permanent Recruiting Parties,	904	"	"
General Service Men,	420	"	"
Total,	29,003		
Commissioned Officers,	2,105		
Retired Officers,	295		

When the insurrectionary movements and combinations of the Southern States in 1861, proved too powerful to be suppressed by ordinary civil powers, the President, April 15, called for 75,000 volunteers for three months, to defend the capital, and May 3, 42,000 to serve for three years or during the war. On the 22d of July he was authorized to accept the services of 500,000, which, within six months afterwards was increased to 1,000,000. This force proving inadequate, a levy of 300,000 men was ordered in 1863, and in 1864, another call for 500,000 men—making an aggregate of 2,653,062 mustered into the service of the United States, or nearly one fourth of the entire male population of the Northern States. This entire force was disbanded within one year from the close of the war.

The development of the naval resources of the country was quite as marvelous. In 1861 the entire navy consisted of 94 war vessels of all classes and in all conditions, capable when in service of carrying 2,415 guns. Only 43 of these ships were in commission, and the seamen and mariners numbered 7,000. In less than three years 200 war vessels were constructed and 418 merchant vessels were converted to military service, and over 50,000 men enlisted in the naval service.

The Southern States in rebellion put into the field over 500,000 men, and exhausted their pecuniary resources, with the loss of 300,000 soldiers on the field or in hospital.

The debt of the United States contracted in the prosecution of the war, stood in 1866 at the enormous sum of $2,783,425,879.

These extraordinary efforts were made under circumstances which are not likely to exist again, and such expenditures could not be repeated without national bankruptcy.

The Militia of the United States, by act of Congress of 1792, consists of all white male citizens between the ages of 18 and 45, who must be enrolled and arranged into brigades, regiments, and companies, as the legislature of each State may direct. Of the militia, as organized by state legislation, the governor is commander-in-chief, except when called into the service of the United States. To provide arms and equipments for the whole body of militia, arsenals and armories are provided by Congress, in different parts of the country, at an annual charge of $200,000 (since 1808).

In the absence of any official information respecting the number and condition of the Militia of the several States,* we gather the following statistics from a pamphlet by General J. W. Hoffman, of Philadelphia, on the subject of the National Guard.

State. Population. Military Organization.

Alabama—996,992.

Arkansas—484,167—78 companies of State Guard, with a total of 5,484 men.

California—560,247,—30 companies of infantry, 2 of artillery, 5 of cavalry; organized into 2 battalions, 2 regiments, 6 brigades, 1 division—aggregate, 2,686. Term of service one year. The State furnishes uniforms, and pays $50 per month to each company of infantry and cavalry, and $25 per gun per month to companies of artillery.

Connecticut—537,454,—40 companies of infantry, 2 sections of artillery organized into 4 regiments, 1 brigade; aggregate 2,906. Term of service 5 years; parade annually, by company or regiment, in the month of May; attend camp for six successive days once in every two years In addition, companies parade once in August or September, and drill not less than one hour in the evenings, not exceeding two evenings in each month, from October to April, inclusive. Compensation to all officers and men $2 per day for each day's duty performed, and 5 cents mileage to and from place of parade. Members of bands $2,50 per day and mileage; $2 per day for every horse used; rent of armories are paid by the State, and all citizens between 21 and 45 years liable to military duty, but may commute by annual payment of $2,00. Total moneys collected from this commutation tax, $62,000 per annum.

Colorado—39,864.

Delaware—125,015.

Florida—187,748,—96 volunteer companies organized with 3,360 men, out of a total of 21,854 enrolled (116,112 white, and 10,242 colored).

Georgia—1,184,109. No organization.

Illinois—2,539,891. No state organization; a few volunteer companies who provide their own uniforms and are furnished with arms and accoutrements by the State.

Indiana—1,680,637. No organization.

Iowa—1,191,792. No State organization.

Kansas—364,399. No state organization beyond the 2 companies to operate against the Indians.

Kentucky—1,321,011. No organization.

Louisiana—726,915,—37 companies of uniformed infantry, 3 of cavalry, 1 of artillery; organized with 6 regiments, 2 divisions—one of which has 2 brigade organizations; aggregate strength, 3,469 out of 107,821 enrolled militia. Term of service 2 years.

Maine—626,915,—10 companies, with an aggregate of 937; State furnishes arms, equipments, and uniforms.

*** The Militia System was broken up by the Volunteer System introduced by the United States and encouraged by State Legislation, and now (1872) even formal returns as to enrollment are not complied with by a majority of the States.**

Maryland—780,894,—the State provides arms, uniforms, and rent of armories, and exempts members from jury duty.

Massachusetts—1,457,351,—92 companies of uniformed infantry, 5 batteries of artillery, 5 companies of cavalry; organized into 10 regiments, 3 brigades, and 1 division; aggregate, 6,277; State pays nearly $200,000 per annum; at the annual inspection in 1870, 5,221 present.

Michigan—1,184,059.

Minnesota—439,706,—30 companies of infantry and 4 sections of field artillery.

Mississippi—27,922.

Missouri—1,721,295.

Nebraska—2,993.

Nevada—2,491.

New Hampshire—318,300.

New Jersey—906,096,—51 companies of infantry, and 2 batteries of artillery; organized into 4 battalions, 6 regiments, 2 brigades; aggregate, 3,146 out of 127,000 enrolled; every company parade at least 12 times in the year, one of which is by brigade; State appropriated in 1870 $26,126. Term of service 6 years, with exemptions from poll tax and jury duty.

New York—4,382,759,—398 companies of infantry, 12 of artillery, 28 of cavalry; organized into 41 regiments, 21 brigades, 8 divisions; aggregate, 24,585; the State furnishes arms and allows rent for armory and $5 per day for any enlisted man who has paraded 7 days in the year, which sum goes into a uniform fund. The State allows for head-quarter expenses, and appropriates annually over $200,000 for its National Guard. Term of service is 7 years, with exemptions from jury duty, and a deduction of $1,000 on the assessed valuation of taxable property.

North Carolina—1,071,361.

Ohio—2,665,260,—2 companies of uniform infantry and 2 sections of cavalry.

Oregon—90,923.

Pennsylvania—3,521,791,—311 companies, with an aggregate of 14,800; no general organization into regiments out of the county of Philadelphia.

Rhode Island—217,353,—State provides armories, or rent for same and pay of armorer, and $2,50 per day for two days' parade, and $3 per horse.

South Carolina—725,606.

Tennessee—1,258,520.

Texas—818,579.

Vermont—330,551,—4 regiments of infantry, 1 battery of artillery; the State provides arms, uniforms, armories, and $2 per day for each days' drill, not exceeding 4 days, and tents for a three days' muster in the autumn.

Virginia—1,225,163.

West Virginia—442,014.

Wisconsin—1,054,670,—8 companies, organized as First Regiment.

The above statement of the legal condition of the militia of the several States, which together constitute the army of Reserve of the United States, is not very creditable to all concerned—to the cities and local communities, whose exemption from riots and illegal combinations of bad men may depend on the fact of an organized force, which the voice of authority could in an hour summon to the protection of the threatened houses and workshops of the citizens;—to the States, whose quota to any national call can not now be depended upon except at the cost of extravagant bounties, and whose raw recruits thus furnished would be worthless till after months of drill and field manœuvres;—to the nation, whose strength should be its weakness for purposes of foreign aggression, and its ability to summon millions of willing men, familiar with military organization and duties, to the defense of their hearths and free institutions.

The Volunteer Soldiery in time of peace, does not hold the same distinct recognition in the armed forces of the United States, apart from the Militia of the several States, as in Great Britain; and yet the most efficient military organizations of the several States, and especially in our larger cities, are of this character; and in most of the States where uniform companies exist, they constitute a permanent and important force, whose services have proved highly valuable in quelling riots and protecting public property. Of the number of regiments or companies—their officers and men, distinct from the enrolled and organized State Militia, we have no official statistics.

MODE OF OFFICERING THE ARMY.

The commissioned officers of the United States army are drawn from three sources:—*First*, from the cadets of the Military Academy at West Point; *Second*, from civil life; *Third*, from the rank and file.

1. The appointment to the grade of lieutenant in either corps, follows regularly to any cadet on graduation, after having completed the course of instruction at West Point. From 1815 to 1832, the army was officered almost exclusively from the Military Academy.

2. The expansion of the military force consequent on the Indian war in Florida, from 1832 to 1837, and the Mexican war from 1845 to 1848, and of the Civil war from 1861 to 1865, was followed by the apointment of many persons from civil life, who had received no military training, and without any special qualifications beyond personal and political considerations.

As a stimulus and reward to special service, promotions are occasionally made from the rank and file, after a mere formal examination in the elementary branches of a common school education, and without the provision for professional training except such as can be got from observation and private reading.

PROFESSIONAL INSTRUCTION AND TRAINING OF OFFICERS.

In the organization and movements of the armed forces of the Colonies, the officers were trained in the military service of the mother country.

In the War of Independence, the general spirit of the people supplied for a time the want of trained soldiers and officers, beyond the small force which had been schooled in the French and Indian Wars; but the necessities of the service compelled Congress to authorize its accredited agents abroad to offer commissions, especially to engineer and artillery officers; and at the close of the war we find nearly all the prominent officers in the artillery and engineer departments had been trained abroad. Nearly all the fortifications were planned by them and erected under their supervision. The names of Steuben, Kosciusko, Du Portail, Radière, Romans, Vincent, Rochefontaine, Toussard, Revardi, L'Enfant, Villefranche, and others of later date, will suggest to any reader of the military history of the country, the extent of our obligations to foreign military schools.

The sources of systematic professional instruction and training for officers of the armed forces of the United States, are—

I. The National Military Academy at West Point, for the general scientific instruction of officers of all arms.
II. The Practical School of Artillery at Fortress Monroe.
III. The Engineer Battalion School of Practice at Hunter's Point.
IV. The Company and Regimental Drill of various Volunteer Corps in the larger cities of the country.
V. The Cadet Corps in various Military and Scientific Schools in different States.

The gradual development of the military Academy at West Point, and the present condition of Military Education will now be given.

THE MILITARY ACADEMY AT WEST POINT.

I. ORIGIN AND HISTORY. PERIOD I.—1802–1812.

THE influence of the United States Military Academy upon education, as well as its wide reputation as a school of science, render an inquiry into its rise and progress, a subject both of interest and profit. Since it is mind, rather than any system of forms and studies, which gives power to such institutions, a mere statement of dates and facts is insufficient to give us a just view of its character. We must, if possible, trace the spirit of the men who guided, and the principles impressed upon it. To do this, we shall resort, not merely to the record of events, but to our memory of men and acts, with which we were for years familiar.

It was not to be expected, that schools of refined, scientific art should be founded by small colonies in the wilderness of the new world. When even their clergymen must resort to Europe for education, and their lawyers for license, it was in vain to expect their soldiers to be accomplished engineers. When the revolutionary war came on, this fact became a painful experience. No man felt it more than Washington. With a people, whose patriotism was unquenchable; with soldiers, who rivaled the warriors of Leonidas, he found the best and truest of men, with the smallest possible share of military science. He was obliged to depend on European engineers for a skill which his countrymen did not possess; while their European ideas, and artificial habits were displeasing to his American principles.[*] He felt military instruction to be a primary want in the country. Accordingly, he was the real founder of the Military Academy; that is, he put forth the *germinal idea.* What the plan of it was to be, and what shape it should ultimately take, he did not state, and probably had not thought of; for Washington in the office of president, seldom meddled with the details of public affairs. What he meant to obtain, however, he distinctly stated, in his message, dated December 3rd, 1793; in referring to measures of national defense, he says an inquiry may be made: "whether your own experience, in the several states has not detected some imperfection in the scheme; and whether a material feature in the improvement of it ought not to be to afford an opportunity for the *study of those branches of the military art which can scarcely ever be obtained by practice alone.*"

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[*] Prepared by Major E. D. Mansfield, a graduate of West Point in 1819, for Barnard's American Journal of Education, March, 1862.

In his message of December 7th, 1796, he said: "Whatever, argument may be drawn from particular examples, superficially viewed, a thorough examination of the subject will evince that the art of war is at once comprehensive and complicated; that it demands much previous study, and that the profession of it in its most improved and perfect state, is always of great moment to the security of a nation. This, therefore, ought to be a serious care of every government; *and for this purpose an academy, where a regular course of instruction is given*, is an obvious expedient, which different nations have employed."[*]

The views, always entertained, and repeatedly expressed by General Washington, were adopted by Mr. Adams, and Mr. McHenry, secretary of war, in his administration, made an elaborate report on this subject, which was transmitted to congress, on 10th of December, 1800. It is due to Mr. McHenry, to say that his ideas of what ought to be a course of military instruction, were far in advance of what were actually provided, till after the war of 1812—'15 proved his ideas to be correct. In 1794, prior to the last message of Washington, congress attempted to supply the want of a military academy, by attaching cadets to the corps of artillerists, and engineers. This corps consisted of four battalions, to each of which eight cadets were to be attached. This made the whole number of cadets thirty-two; and for this corps of artillerists, engineers and cadets, the secretary of war was directed to procure books, instruments and apparatus. The term *cadet* signifying in French, the youngest brother of a family, and in Spanish, a young volunteer officer, became naturally applied to young men, who were junior, volunteer officers. In England, the *cadet* of a family was a young son, who volunteered for the India service; and in the United States has been properly applied to the youth, who enter the military academy.

It seems from the message of Washington, in 1796, that the attempt at military instruction, was a failure. No place, no teachers, no studies, were appointed. It was on the 16th of March, 1802, in the early administration of Mr. Jefferson, that congress established, by that name, the *Military Academy.* It was still made part of an army corps; the idea of making a separate institution for scientific studies not being yet matured. The artillerists and engineers were made two distinct corps, of which there were forty cadets of artillery and ten of engineers. The corps of engineers consisted of a major, two captains, four lieutenants, and ten cadets, making seventeen in all. *The corps constituted the military academy,* established at West Point, in the State of New York. So little idea was then entertained of the true objects and mode of scientific instruction, that the law required the cadet, as well as officer, to do duty in any part of the United States. In other words, the only idea of the military academy, at that time, was *a place appointed where the officers of engineers might give or receive instruction, when not on other duty.* The actual academy, such as it was, conformed to that idea. The major of engineers was the commander, or superintendent. The two captains were instructors, and the cadets were pupils. It was, as a school, an inchoate existence, without regular teachers, or limited studies, or proper discipline. Yet, even in this imperfect condition, it did, as we shall see, some service which ought to be gratefully remembered.

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[*] It is not meant to say that this subject was not mentioned before. It was by Col. Pickering, in 1783. But whoever reads the letters and memoirs of Washington, will see, that all the early ideas on the subject of military education and military science were derived from the experience of Washington.

In the meanwhile, let us turn for a moment, to the *place* which is so memorable in the annals of this country, and is now so intimately associated with science. If Dr. Beattie is correct in saying that the character of the mind is much associated with natural scenery, no place in America could have been more wisely selected, as the site of a national institution. World renowned, as West Point justly is, there is that in its scenery and associations, more interesting to a poetic or a patriotic mind, than its famed Academy. Its green plain, hidden amidst its mountains; its craggy summits; its rocky barriers; its dark evergreens; its darker waters, flowing on forever; that beautiful view of town and country, seen through the frowning brows of Crow Nest and the Beacon; that quiet vale, where Washington oft bent his steps; those lonely little mounds, where the soldiers of the Revolution repose; these forts and ramparts now indistinctly seen, which once guarded these mountain passes; yon ledge of rocks, where Kosciusko once made his little garden; all these and other memorable things, call up whatever is sublime in nature, or noble in history. It is impossible to forget them. It is impossible for the dullest mind, not to have its sensibilities excited, or its character elevated by the contemplation of such sublime scenes, or such interesting events. When such a spot becomes the place of our education, its memories become poetic; its associations mingle with the flow of life, and the structure of our minds.

To return. The law having authorized this ideal Academy, it was immediately instituted, by the appointment of officers. The Academy, it is seen, was on quite a small scale. In fact, so far as teaching was concerned, the Academy consisted of two captains of engineers and ten cadets. The two captains were **William H. Barron** and **Jared Mansfield**. Mr. Mansfield had been a teacher of mathematics, navigation, and the classics, first at New Haven, (Conn.,) and then at Philadelphia. He had written a volume of "Essays" on mathematics and physics, quite original, and distinguishing him at that time, as the first mathematician of his country. This was brought to the notice of Mr. Jefferson, who with no great love of military affairs, was a warm friend of science. When the act was passed authorizing the Military Academy, Mr. Jefferson wrote to Mr. Mansfield, that he would appoint him a captain of engineers, for the *very purpose of becoming a teacher at West Point.* Accordingly he was appointed, on May 3rd, 1802; Captain Barron had been appointed in April. Then, in May 1802, the actual Military Academy was constituted, Captains Barron and Mansfield being teachers of mathematics and philosophy, to some half dozen or more cadets and lieutenants. No professor of engineering or of any other department was appointed before 1812. In pursuing the course and growth of instruction at West Point, during this period of ten years, we can only refer to the services of the instructors and graduates. In fact, there were no graduates prior to 1815; but there were *appointments* made from the cadets of the Military Academy, after more or less study at West Point. To understand what was done, we must refer to the actions of teachers and cadets, rather than to history. Its teachers were few and its annals brief. Captain Mansfield, after a year's teaching at West Point, was in 1808, appointed by Mr. Jefferson, to a more responsible position. It was necessary to the correctness of our public surveys, that the meridian lines, and the base lines (which are co-ordinates,) should be established with astronomical accuracy. For this purpose, Captain Mansfield was appointed surveyor general of the north-western territory; furnished with astronomical instruments, and taking his residence in Ohio, proceeded to establish and perfect that beautiful system of surveys, by which the north-western states are distinguished. Retaining his military bent, with a view to his original destination at West Point, he actually returned there in 1814, to recommence, as we shall see hereafter, his career as an instructor in the national institution. Of Captain Barron, his co-teacher, we only know that he was relieved in February, 1807. At the same time, his successor, Ferdinand R. Hassler, was appointed, and remained till he resigned in 1810. Mr. Hassler was, we believe, a Swiss by birth. He wrote a small treatise on mathematics, and had quite an extensive reputation, as a mathematician, but was said to be too analytical and refined in the character of his mind, for American practical habits. He was intended for the coast survey, and, we believe, actually commenced it.

In November, 1806, Alden Partridge, superintendent of engineers, was appointed *acting assistant* professor of mathematics, and retained that position till April, 1812.

The "Teacherships" of French and drawing were created, by the act of February, 1803, being a very important addition to the original scheme of the Academy. To the teachership of French, Francis De Masson was appointed, March, 1804, and resigned in March, 1812. To the teachership of drawing, Christian E. Zoeller was appointed, September, 1808, and resigned in April, 1810. Mr. Masson was a Frenchman by birth; Mr. Zoeller, a Swiss. Mr. Masson was highly spoken of by Colonel Williams, a good judge of what constitutes a scholar. Mr. Zoeller was an amiable man, of no high attainments, whose instruction in drawing was wholly confined to the military part, fortifications and bridges.

From this brief history, it appears, that there were but six teachers at West Point, between 1802 and 1812. Of these, no more than four were ever present at one time, and that only between 1808 and 1810. The teachers present, each year, were as follows:

1802—1803, . . .	Captain Barron, Mathematics.
	Captain Mansfield, Philosophy.
1804—1806, . . .	Captain Barron, "
	Francis Masson, French.
1806—1807, . . .	Captain Barron, Mathematics.
	Francis Masson, French.
	Alden Partridge, Mathematics.
1808—1810, . . .	Ferdinand Hassler, "
	Alden Partridge, "
	Francis Masson, French.
	Christian Zoeller, Drawing.
1810—1812, . . .	Alden Partridge, Mathematics.
	Francis Masson, French.

This glance at the actual teachers of West Point enables us to see at a glance, what was done. No continuous study was pursued at all, except mathematics. For the eight years, between 1804 and 1812, French was taught by an able professor, Mr. Masson, and from 1808 to 1810, drawing. In 1812, this inchoate existence of the Academy was ended by the act of congress, reorganizing the institution, and placing it on a permanent and extensive foundation. The next period of five years, from 1812 to 1817, was the *forming* period of the Academy. In some respects, its elements were chaotic. In others, its *personnel* was inefficient and inharmonious. In others, again, its materials of instruction were inadequate. From this condition it finally emerged, and attained its present high character and usefulness. The history of this change is important, if not interesting to those who would understand what are the true foundations of a great school of education. In the meanwhile, let us return to what the CADETS of the Academy had done. If they were few, and with small means of instruction, they may nevertheless have shown that the Academy was not altogether fruitless. How many cadets were appointed between 1802 and 1812, we do not exactly know, but we have the number appointed *from the Academy*. The number of cadets promoted from the Academy during that period were for each year, thus:

In 1802, . . .	2.
In 1803, . . .	3.
In 1804, . . .	2.
In 1805, . . .	3.
In 1806, . . .	15.
In 1807, . . .	5.
In 1808, . . .	15.
In 1809, . . .	7.
In 1811, . . .	19.
In 1812, . . .	18.

This makes eighty-nine in ten years. Let us look at their career, as stated in the brief annals of the army; or, as they are retained in memory. Of this number, comprising ten cadets of more than half a century ago, this is the result:

Killed in battle, . . .	10.
Died in service, . . .	21.
In service, ...	7.
Resigned, ...	33.
Disbanded, ...	10.
Dropped, ...	3.
Dismissed, ...	4.
Declined, ...	1.

This is no bad roll. If we were to search our college rolls for those who had been really useful, those who died in battle, or served to the end, or entered other fields of usefulness, or now live in the performance of duty, we should find a less grateful exhibition than this. The number of those who had been "dropped," or "dismissed," for incompetence, or vice, would be far greater. Alas! if we could read the secret history of the college roll, how sad would be that account! We know, that in times past, many of the officers of the army were addicted to dissipation. Happily, we can say, many less now. But since we would estimate the value of the Military Academy, even in its most imperfect condition, let us see *who* some of these men were.

The first cadet appointed was General JOSEPH G. SWIFT,* who having risen to the rank of general of engineers and inspector of the Military Academy, resigned, became surveyor of the port of New York, and is now a venerable and respected citizen of Geneva. Of those who were killed in battle, *Eleazer D. Wood*, (whose monument stands at West Point,) was killed while loading a cannon, in the sortie from Fort Erie. Five others were killed on the Canada frontier, and four in battle with the Indians. Of those who died in service, *two* reached the rank of general, and *eight* that of field officers. Of those who are now in service, (7,) one is General JOSEPH G. TOTTEN, chief of the corps of engineers, who served on the Canada frontier in the war of 1812, and at the siege of Vera Cruz. One is Col. SYLVANUS THAYER, who served in the war of 1812—'15; who was superintendent of the Military Academy from 1817 to 1833, and to whom it is indebted for a large part of its usefulness. Of these gentlemen, we shall have more to say, when we refer to the forming period of the institution. Another is Colonel RENE DE RUSSY, who was distinguished in the battle of Plattsburg, and became superintendent of the Academy on the retirement of Col. Thayer. Of those who resigned or were disbanded, many died young; one became a member of congress and politician; and another, Col. WILLIAM MCREE, was a remarkable man, distinguished for gallant conduct in the battle of Niagara and Fort Erie, a member of the board of engineers, and of cultivated mind; he resigned from the army and became surveyor general for Missouri and Arkansas, and finally died of cholera at St. Louis. Of the whole eighty-nine, who were commissioned prior to 1813, but twenty-one were alive in 1850, and several others have died since. The few who now remain have seen more than half a century's service in useful employments. Perhaps it should be mentioned to the advantage of the Military Academy, as a school of physical education, that at the end of half a century, twenty of its pupils out of eighty-nine, should be yet alive. In twenty years of civil life, as appears from the United States census of 1830 and 1850, more than the same proportion of youth between ten and twenty years of age perished. The general strength and health of the pupils of West Point are beyond a doubt greater than that of the same number of young men brought up in the ordinary methods of education. This is not wholly due to physical exercises, but also to moral education, and to the care and comforts of their mode of life. Will any one deny that *discipline* is a part of moral education? Is not self-restraint, the regularity of habits, and the art of using the mind in intellectual pursuits, the most important elements of a moral education? It is to all these, and not merely the training and exercise of arms, that the eléves of the Academy owe so large a share of the health and strength of life.

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* The *first* diploma, which we suppose was a manuscript certificate, was the one given to the then Cadet SWIFT, and signed by Captains Barron and Mansfield.

In the period of its history which we have now examined, the Military Academy was really only in the germ of its existence. Like most other useful or remarkable enterprises, it was first thought of as a thing needed; then began without any clear idea of what it would become, and was then improved upon, till it grew to be of magnitude and importance.

PERIOD II.—1812—1825.

The Academy, in its germinal existence, whose history we have briefly traced, was obviously inadequate to supply the army and country with young men instructed in the art of war. Congress authorized the appointment of a large number of cadets. But the President did not act upon it, because there were neither professors, nor books, nor quarters, nor material at West Point for their training. In 1808, Mr. Jefferson recommended an enlargement of the Academy. In 1810, Mr. Madison did the same. In vain, however, were these recommendations, till the nation was roused from its indolent repose by the sudden shock of war. In 1811, the battle of Tippecanoe electrified the people. The war-whoop sounded on the north-western frontier, and the aggressive conduct of Great Britain became insufferable. War was an imperious necessity. Then it was that the use if not necessity of an institution for military training became obvious to all reflecting minds. In April, 1812, the act was passed which erected the frame-work of the present Military Academy. As this legal outline has been little changed since, it is necessary that we should look to its provisions, for correct ideas of what the law intended, and what has been substantially carried out in its growth and development.

1st. It was provided, that the number of cadets might be increased to two hundred and fifty, and attached at the discretion of the President as students to the Military Academy at West Point, and be subject to the regulations thereof.

2d. That these cadets should be between the ages of fourteen and twenty-one, and previous to his appointment should be well versed in reading, writing, and arithmetic.

3d. That the Military Academy should consist of the Corps of Engineers, the Professors of Philosophy, of Mathematics, of Engineering, with their assistants, and the teachers of French and Drawing.

4th. That when any cadet shall receive a regular degree from the Academical Staff, he shall be considered a candidate for a commission in any corps for which he shall be deemed competent.

In addition to these provisions for education, money was appropriated for buildings and books, and for a band of music. The expenditure provided for was very small, compared with the need of the Academy; but it was enough for a beginning. It was far easier, as we shall see, to provide for all its material wants, than to bring it into that state of moral and intellectual discipline, which was essential to the attainment of great results. The institution, in its former period, was in an inchoate condition. A few young officers, raised up partly as teachers, and partly as pupils, without a course of studies, without regulations, and without discipline, could furnish no just ideas, from experience, of what a highly intellectual, well-ordered school of science should be; and accordingly the want of just ideas of education was precisely what first stood in the way of making West Point what it subsequently became.

For more than five years there was a wrestling between old and new ideas. There was a positive ignorance of what high education should be. In fact, the country had no models for it. Then there were old habits to overcome. Lastly, there was a willfulness on the part of some in authority, opposed as long as opposition was possible, to any new idea of things. For people are aware, in this day of change and novelty, how strongly the *vis inertiæ* of intellectual habits opposes intellectual improvement. This very *vis inertiæ*, at first, almost nullified the power of law itself to improve and enlarge the studies at West Point. How it acted we shall see. The first difficulty at West Point was, (after preparing the accommodations and material) in complying with the spirit of the law, and placing the *academic instruction on the high ground really intended.* To understand this we must here advert to some provisions of the law which were either overlooked or neglected. First, the law expressly recognized an *Academic Staff*, who should confer *degrees*. Secondly, that the cadets of West Point should be *students*, subject to the *regulations of the Academy*. All this evidently meant that these two hundred and fifty young men should be placed, like students in college, under regular academic instruction, and that the professors and teachers should constitute an academic faculty, with power to regulate the education of the cadets, and confer degrees according to merit. Ultimately this was accomplished; but it took much effort on the part of the Professors to bring the military authorities into a just conception of this scheme. During the years 1812 and 1813, little was done except in commencing buildings, buying apparatus, appointing the cadets, and getting ready for the real business of the institution. Here we must record the first academic faculty organized at West Point. The professorship of Natural and Experimental Philosophy, which was higher in rank and emoluments than the others, was instituted expressly for Col. JARED MANSFIELD, who, having retained his commission in the corps of engineers, while he was surveyor-general in the north-western states, was now (October, 1812,) appointed to the same professorship which he held ten years before. ANDREW ELLICOTT, who had been astronomer of the United States, and had a wide reputation for mathematical knowledge, was appointed professor of Mathematics, in September, 1813, at which time, also, ALDEN PARTRIDGE was appointed professor of Engineering. The teacher of drawing was CHRISTIAN E. ZOELLER, reappointed; and of French, FLORIMOND DE MASSON. This was the first academic faculty. Subsequently, the principal professors were allowed assistants, and other teachers were at still later periods provided in the departments of Ethics, Tactics, Artillery, Chemistry, &c., as the institution was enlarged, and its wants were better known. The gentlemen above named were, however, the first professors and the first faculty. They had the real *labor* and responsibility of taking the initial steps, and to a large extent, of forming the Military Academy. At the very first step a difficulty occurred, which could not have been anticipated. Captain ALDEN PARTRIDGE, (who was professor of Engineering) was superintendent of West Point, from January, 1815, to November, 1816—nearly two years. He was a man of strong will; of independent and rather eccentric ideas, who quite naturally as a military man, long resident at the Point, wished to forget that the law required the education of the institution to be decided by an academic faculty, and governed by regulations. He chose rather to remember that it was a military post, governed by a military commandant, and sought to gratify his own ambition by grasping its sole direction. Professors Mansfield and Ellicott, who held no command in the army, took a different view of the subject. They justly thought, that the object of the institution was to give a thorough *scientific education*, especially adapted to the art of war; that this required discipline, and a course of studies systematic and complete; and that all this was evidently contemplated by the law, which said that the Academy should be governed by regulations, and hence an academic faculty. This difference of opinion was vital. It led to a controversy of two years, which belongs to the private rather than the public history of the Academy. Little of it was known to the public, and we are now concerned only in the issue. Had the views of Captain Partridge prevailed, the institution never could have become what it is.* Fortunately, the Professors had the law on their side, and also the good opinion of the administration, and eventually gave to the scientific college the cast and features which it now has. For three years, between 1814 and 1817, this internal controversy continued, gradually tending to give the Academy a systematic organization. General JOSEPH G. SWIFT, (head of the corps of engineers,) who was officially inspector of the Academy, took up his residence at West Point, in November, 1816, but remained only two months. While there, there could be no controversy, as to the government of the Academy, since the commander of engineers was legally its chief. After the removal of General Swift, Captain Partridge, as senior officer, again took command. It was determined, however, to remove him; and the Government most fortunately hit upon an officer, whose character, education, and accomplishments, most eminently fitted him for the post of governing, and disciplining the young men, who were in turn to become the *savans* as well as the ornaments of their country. This officer was SYLVANUS THAYER, a native of Massachusetts, commissioner in 1808 from West Point to the engineer corps, and who had recently traveled in Europe, examining the military schools of France and Germany. The arrival of Colonel Thayer constitutes the most important epoch in the history of West Point. Why it is so will appear evident when we trace out the *scientific culture* of the Academy, and the discipline which it furnishes. Up to 1813, we have seen that the Military Academy was merely a small company of officers and cadets, who, being stationed at one post, were required while there to pursue certain mathematical and military studies. It had no one element of organization. From 1814 to 1817, professors Mansfield and Ellicott were struggling with no more than partial success, to give it organization and systematic instruction. But, in 1817, Colonel Thayer, who had seen in France what such institutions required, and whose enlightened mind realized the necessity of adopting better methods, at once coöperated with the Professors, in making a permanent and successful reform.

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* Captain Partridge, who was a useful and energetic man, had subsequently full opportunity of carrying out his popular views in the military schools of Norwich and Middletown, which he founded by his own efforts.

At this point we should notice the additions made to the academic staff, between 1816 and 1819, and the steps taken by the war department toward carrying out the views of the Professors, and Colonel Thayer. CLAUDE CROZET was appointed professor of Engineering, in March, 1817; DAVID B. DOUGLAS was appointed assistant professor of Natural Philosophy, in January, 1815; CHARLES DAVIES was appointed assistant professor of Mathematics in December, 1816. Rev. THOMAS PICTON was appointed Chaplain, and professor of Ethics, in July, 1818. THOMAS GIMBREDE was appointed teacher of Drawing, in January, 1819. Major JOHN BLISS, instructor of Tactics, in April, 1818; Lieut. GEORGE W. GARDINER, instructor of Artillery, in September, 1817. CLAUDIUS BERARD succeeded Francis Masson, as teacher of French, in January, 1815; JOSEPH DU COMMUN was appointed second teacher of French, in March, 1818. Of the old professors, Captain Partridge and Francis Masson were gone; all the others remain. Thus, in 1817, when Colonel Thayer took charge of the Academy, the corps of teachers was composed of professors Mansfield, Ellicott, and Crozet; teachers Zoeller and Berard; and assistant professors Douglas and Davies, exclusive of the military teachers and of those appointed in 1818 and 1819. This was properly the Academic Staff, and Colonel Thayer was willing and pleased to have them take their proper part in organizing the institution, and raising it to that high standard of discipline and excellence to which it has since attained. In the meanwhile, the war department, under the enlightened administration of Mr. Crawford, had endeavored to supply some of the obvious defects of the Academy, by new regulations.

So far we have pursued the history of the Academy, as it progressed from a germinal idea to actual being and life. It is now necessary to trace that system of *scientific culture* which is its essential element and peculiar character. In this the student of education may be more interested, and as we trace it still further, in its *fruits*, the education and services of more than two thousand young men, who have held the most important positions in all the departments of life, we shall be better able to pronounce a just judgment upon its merits and services.

Mr. Crawford, one of the most enlightened men who have appeared in public affairs, was, we believe, the first to understand and attempt to remedy the defects and irregularities which Professors Mansfield and Ellicott had pointed out.[*] In March, 1816, "Rules and Regulations" were drawn up by Mr. Crawford. The main points in them were—

1. There shall be a Board of Visitors, to consist of five suitable gentlemen, who shall attend each annual examination.

2. There shall be a General Examination twice in each year; in July and December, and an annual vacation in July and August.

3. Cadets shall be admitted in September, and examined in spelling, reading, writing, and arithmetic.

4. A course of studies, embracing definitely all branches of science and instruction to be procured, and rules for classification shall be drawn up, and comprise a complete course of education at the institution.

According to the last regulation, a course of studies was drawn up by the Academic Faculty, and approved by Mr. Crawford, in July, 1816. This course comprised four years, and was substantially the same (although largely increased,) which has been pursued since.

The *first year* studies were English Grammar, French, Algebra, Geometry, and Logarithms.

The *second year* comprised French, Geometrical Construction, Application of Algebra, Mensuration, Plain and Spheric Trigonometry, the Conic Sections, and Drawing.

The *third year*, Natural and Experimental Philosophy, Astronomy, and Drawing.

The *fourth year*, Engineering, Geography, History, and Ethics.

In the first draft, Engineering was put in the third year; but since 1817, has been placed in the fourth. In a year or two afterwards was added the Calculus; and in a few years, Chemistry, Mineralogy, and Natural Law. This course of studies is exclusive of the purely military part, which under the heads of Tactics, Practical Artillery and Gunnery, occupied several hours each day.

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[*] These defects and irregularities arose from not obeying the law, and not pursuing the ideas it pointed out. The great effort of Professors Mansfield and Ellicott, was to get the spirit of the law followed practically.

Thus, in July, 1816, the Academy had for the first time arrived at a course of studies, and a preparation for discipline. In the fall and winter of 1816, began an attempt to carry this course of studies into practical effect. We do not say there had been no studies and no attempt at classification before that, for there were, but that nothing had really been perfected in either, till after the "regulations" of 1816. If we could carry the reader back to the year 1815, and see the difficulties under which the professor of that day labored, the small material provided, and the undisciplined condition of the young men under their charge, we should give better views of the merits and services of its pioneer teachers. One or two reminiscences may possibly throw some light on the subject. Colonel Mansfield arrived at West Point in 1814, and immediately sought for his pupils. He was not like the professors of whom Gibbon speaks, remembering that he had a salary to receive, but forgetting he had duties to perform. On the contrary, he immediately asked for pupils to teach. What was he to teach? Philosophy and Astronomy. But these required prior training, and it was not till the winter of 1814–'15, that he could find any pupils. Then he found *five* young men who thought that they could go on in such studies. For want of any recitation rooms at the Point, he taught them in the parlor of his own house. As we shall refer specifically to the subject of text-books, we merely add, that the only work to be found at all suitable, was *Enfield's Philosophy.* There was no classification, and in a few months these five cadets were commissioned. They made the first class in Philosophy, taught at West Point.

Again, there are some who will recollect Professor Ellicott, sitting at his desk at the end of a long room, in the second story of what was called the Mess Hall, teaching Geometry or Algebra, looking and acting precisely like the old-fashioned schoolmaster, of whom it was written,

"And still they gazed, and still the wonder grew,
That one small head could carry all he knew."

The cadets were all "boys" to him, and his kind face was long remembered. In the other end of this room, or in the next, was seen his acting assistant, Stephen H. Long, then a young lieutenant of engineers; since distinguished as a traveler, an engineer, and a man of science. The text-book used was "Hutton's Mathematics," and at that time the best to be had. Mr. Hutton had been a professor at Woolwich, England, and his treatises were plain, simple, easily understood, and therefore well adapted to beginners. It was, however, very deficient both in extent and analysis. It was a good text-book then, for there were no cadets trained to pursue deeper or more analytical works. With Hutton's Mathematics, Enfield's Philosophy, and plain right-lined drawing, and nothing which could be called engineering, did the cadets of the Academy get along, without roll, classification, or graduation, till the close of 1816.

In August, 1817, as we have said, Colonel Thayer became superintendent at West Point; and in the course of the next four or five years the Academy passed through the great changes which brought it from the inchoate to the crystallized state in which it now appears. The most important of these changes relate to scientific culture; and we shall best describe them by narrating the *actual work* the classes then pursued, and the change of text-books. The first step was taken, as we have seen, in March, 1816, by the regulations of Mr. Crawford, which required classification, a course of studies, and annual examinations. Some steps towards these were taken in 1816, but very imperfectly. In 1817 the system of classification was first systematically begun. Claude Crozet, a French officer under Napoleon, and a pupil of the Polytechnic School, was appointed professor of engineering, in March, 1817. The annual examination coming on in June, the course of studies in his department did not regularly commence till September, and the second or junior class* of 1817—'18 was the *first* class which commenced thoroughly the severe and complete course of studies at West Point. The *labors* of that class in the years 1818 and 1819 may have been equaled, but certainly have not been surpassed. It was not a brilliant class, but its labors were not the less on that account. It had not merely to pass over the plain turnpike road of science which is now made so easy to those who follow; but, like the pioneers of an army, had to cut down the obstructions, make their own bridges, and to no small extent, furnish their own munitions. Let us look into the class-room of 1817, as Professor Crozet advances to instruct those young men in studies, which were not only new to them, but entirely unheard of, and in which the language to which they were born and bred *furnished not a single text-book.* Professor Crozet was to teach engineering; but when he met the class, he found not one of them fit to learn engineering. These were branches of science, and its affiliations, essentially necessary to engineering, which they had never been taught. What was he to do? All he could do obviously was to supply these preliminary studies before he could commence in his own department. In other words, he must begin by becoming a teacher of mathematics, and drawing. The surprise of the French engineer instructed in the Polytechnique may well be imagined when he commenced giving his class certain problems and instructions, which not one of them could comprehend or perform. Among these preliminary studies was Descriptive Geometry, not an original and distinct science, but which by *projecting* geometrical figures and problems on co-ordinate planes, gave a more facile and practical mode of *representing* (as its name implies,) as well as solving many geometrical and practical problems. This, too, required an accurate knowledge of mathematical and perspective drawing, and its various minor but important arts. We doubt whether at that time more than a dozen or two professors of science in this country knew there was such a thing; *certainly* they never taught it, and equally certain, there was not a text-book in the English language. Perhaps this is not surprising, when we reflect, that this new application of geometry was scarcely thirty years old. Monge, a French savans, was, we believe, the author of this system, about the beginning of the French Revolution. Crozet meant to begin with Descriptive Geometry, but fortunately, the class was not in the last year of the course (in which engineering has recently been taught,) and could spare some time for mere mathematics. But, a new difficulty arose. There was no text-book in English, and none to be had just then in French. Geometry is not a thing to be taught orally. What is to be done? It was here at this precise time that Crozet, by aid of the carpenter and painter, introduced the *blackboard* and chalk. It is a very simple thing, and so is every thing which is useful; but we know of no mere adjunct of teaching, so useful as the blackboard. To professor Crozet, so far as we know, is due the introduction of this simple and useful machine. He found it, with many other things, far superior to the English methods in the Polytechnic of France.

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* The Class here spoken of graduated in 1819. Of its living members, are Henry Brewerton, late Superintendent at West Point; Edward D. Mansfield, Commissioner of Statistics for the State of Ohio; Justin Dimmick, late Commander of Fortress Monroe; Daniel Tyler, a distinguished Engineer and General in the Army of the Potomac; Wm. H. Swift, a distinguished Engineer, and President of the Illinois Canal Company; Joshua Baker, a Civil Engineer, Judge, and Planter, in Louisiana; and Major Turnbull, distinguished as a Topographical Engineer in the War with Mexico.

Among the dead was George H. Whistler, the most distinguished Civil Engineer our country has produced.

We now see Crozet with his blackboard before him, chalk in hand, and animated, intellectual face, about to teach his class a new science, without a text-book. Again he meets a new difficulty. He does not more than half understand the American language. This difficulty is only to be overcome by practice. With extreme difficulty he makes himself understood. With extreme difficulty his class comprehend that two planes at right-angles with one another are to be understood on the same surface of the blackboard on which are represented two different projections of the same object. But, at last it is done. The Professor labors with inexhaustible patience, and the pupils are pleased to receive into their minds entirely new ideas. The first problems are drawn and demonstrated on the blackboard, by the Professor; then drawn and demonstrated by the pupils, and then accurately copied into permanent drawings; and thus this class were taught in the most important and valuable method of imparting true knowledge, which has been given to mankind since the days of Socrates. Fortunately, professor Crozet had brought with him the complete drawings of the French Polytechnique, so that he was not, in this particular, obliged to depend upon himself. The path of his instruction soon became easier, and then this class completed their course in drawing, mathematics, and Engineering.

In the study of Natural Philosophy and Mechanics, the way was scarcely less difficult. We have already said, that Enfield's Philosophy was the first book on that subject. But this was not enough. Professor Mansfield looked around in vain for any suitable book on Mechanics. At last, *Gregory's Mechanics* was adopted. It was a book without any analysis, and probably written only for scientific men. Yet, it was the best to be had. For several years after, this work still remained the best book on Mechanics. Whether the class who first studied its mysterious pages acquired as clear and extensive ideas of the subject as those who have since passed over smoother roads, may be doubtful. It is certain they had more arduous labors. We have said there was *no* text-book on engineering, as a science. When the class which had commenced Descriptive Geometry, with professor Crozet, (then the second or the junior class,) had become the first class, they were instructed in engineering by drawings from oral teaching, on the blackboard. The various modes of laying out fortifications, of bridging, of defiling, of materials, ordnance, &c., were taught by professor Crozet. For several years no text-book in engineering was found. It was not till 1823 that a French treatise, entitled the Science of War and Fortication, was translated by Major O'Connor, and for several years used as a text-book. It will be seen that the class which, in 1817, 1818, and 1819, commenced the new culture and discipline of West Point, had an arduous and difficult task. It is, notwithstanding, quite probable, that this severe exercise of the mind, in making paths for itself, where there are no guide-posts on the way, no regal road, is a better discipline than that furnished by the more easy and systematic methods.

Perhaps no one step taken at West Point, has contributed so much to intellectual culture as the Merit-Roll. The effect at the Military Academy is totally different from what it would be at any civil institution. For there it determines *rank*, which is the great object of military men. Forty young men may be commissioned on the same day to the same grade, but through all their after life, even when they return to civil life, the distinctions of the merit-roll will follow them, and be counted for or against them. In the very first day of their commissioned service, the distinction is a practical one, for there are great and practical advantages in certain *arms* of the service over others. Thus the engineer officer, without any actual care of men, or responsibility for any movements, and almost always stationed at comfortable posts, has great advantages over other arms. The Artillery has advantages over the Infantry. Thus the cadet, commissioned from West Point, has determined for himself, by his position on the merit-roll, not only his rank in the army, but almost his position in human life. The merit-roll, as it now exists, graduated in all departments, and summed up at the close of the course, was not adopted at once, but was the work of several years.

In February, 1818, the superintendent of the Academy was directed by the Secretary at War to publish in the Army Register the "names of cadets who are distinguished for attainments, and meritorious conduct, not exceeding five in each class, specifying the studies in which they may excel."

We well recollect with what excitement and interest this communication was received by the cadets of that day, especially by those who thought themselves within the probabilities of that distinction. It unquestionably stimulated most of the young men to much greater exertions than they would otherwise have made. In a few months after, the merit-roll was fully established in the classes, and the rank of the graduating cadets determined by it.

There has been much discussion, and no small doubt, as to the real effects of emulation. There is undoubtedly a bad sense, and a bad effect attached to that term. But is that a necessary consequence of the merit-roll? Is not the merit-roll adopted, so far as it can be ascertained, in all departments of human life? Who would risk himself with an ignorant engineer, if he could get a skilled one? Who would employ a poor clerk if he could get a good one? The objection made to emulation is that it excites wrong motives. However this may be, and however casuists may regard it, it is quite certain that the merit-roll is the strongest stimulant to intellectual exertion which can be presented to young men. Nor can we perceive, after much observation on its effect, that it has impaired the purely moral motives of action, or excited evil passions, to be remembered in after life. At West Point all the moral actions which are visible and tangible are brought within the scale of the merit-roll, and often the fate of a young man is determined far more by his standing in conduct, than in studies.

II. STUDY, DISCIPLINE, AND FRUITS.

Having thus sketched the historical progress of the Academy in the path of scientific culture, it remains for us to state what it *is*; what it has *done*; and what men have *conducted* it.

Without entering into minute details, we shall very briefly state the present methods of study and discipline. The leading studies in their order are Mathematics, Natural Philosophy, Mechanics, Astronomy, Engineering, Chemistry, French, Tactics, Artillery Practice, Mineralogy, Ethics, and History. This course is wholly scientific, the practical part being adapted strictly to military purposes. In the early period of the institution, some attempt was made to introduce the classics, but it was found impracticable, with the limited time allowed the cadets. Indeed, it may be doubted whether any institution can have more than one *tone*. All branches of human learning may be embraced in the proper schedule of university instruction; but has any university given equal attention to all branches of education? What are called colleges in our country, all aim at fitting young men for the civil professions—Law, Medicine, and Theology. They therefore make the classics the principal branch of study, and are right, since Law, Medicine, and Theology have their foundation deep laid in the classic ages. Literature also is a part of professional knowledge, necessary to adorn and illustrate the history and theory of professional science. Hence, in these lines of instruction specially have run the studies of the college, and from these is derived the *tone* of college education. The object of the Military Academy was totally different. It was not civil, but martial life, for which the young men were fitting. It was neither a metaphysical discussion, nor a hair-splitting argument on the law, in which they were expected to excel. They were to learn the sterner arguments of the battle-field; to arrange squadrons for the hardy fight; to acquire that profound knowledge of the science and materials of nature, which should fit them for the complicated art of war; to defend and attack cities; to bridge rivers; to make roads; to provide armaments; to arrange munitions; to understand the topography of countries; and to foresee and provide all the resources necessary to national defense. This was the object of the Military Academy, and to that one end it was adapted. The method of education may be happily stated under the heads of Studies, Physical and Moral Discipline, and of Military Exercises.

1. The subjects and method of study we have already mentioned; Mathematical, Philosophical, Mechanical, Chemical, Military, and French, the military language. These being the chief topics of study, the students and the time were suitably divided into classes and hours. There are four classes, occupying four years, as usual in colleges. There are ten months of study, the intermission being in the hot months of July and August, when only military studies and exercises are pursued. The studies of a day are necessarily modified, by the introduction of military exercises which consume much time. The regular *study hours* (which include also the recitations,) are from 8 A. M. to 1 P. M., and from 2 P. M. to 4 P. M., making *seven hours* of study and recitations. Generally *four hours* more are consumed in military exercise and discipline, being the hours before breakfast, and after 4 P. M. Thus *eleven* hours are generally occupied either in study or exercises. The evening also after dark, is devoted to study in so far that with occasional exceptions, the cadets are required to be in the rooms. In this division of time we find a *continual alternation of study and exercise;* leaving the least possible time for idleness, or mere amusement. Indeed, the problem of education is to find the *maximum of development,* with the *minimum of idleness.* To this should be added, that the development should be co-relatively, intellectual, physical, and moral.[*] It is not merely ignorance, but *unequal* development, which is the great misfortune of mankind. How many great and glorious intellects have been lost, because there were no counter-balances to the

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[*] We use the word *moral,* in preference to spiritual, because, in its comprehensive sense, including the latter; but by no means intimating, that in this Christian country, we should make any place of education a mere reproduction of Persian or Greek models. Our servile imitation of the Ancients, often makes us forget that we are neither Spartans nor Romans. The man who attempts at this day to revive the institutions of Pagan Greece, is as false to true Philosophy, as he is to true Christianity.

force which, inclined in only one direction, carried them off into a wilderness of fruitless objects!

In the course of studies pursued at West Point, the main feature is the *method* of study. We can give an idea of this in a few words. The very first thing done at West Point is to *recognize* the fact, that *intellects are unequal;* in other words, that of a given number of young men, commencing a severe and elaborate course of studies, there will be some who can not endure it, and can not get through; and others, who while they will come up to the requisites for graduation, can not equal a third class, who are capable and ambitious of receiving the highest style of education. This recognition is effected thus: a class enters the Academy, we will say *eighty* in number. This class enters on the 1st of September; and on the 1st of January there is a semi-annual examination. This four months of study by that class is regarded as a period of *probation*, which will furnish some test of the abilities of its several members. When the January examination is held, some are found deficient, and they are at once discarded. Then the remaining class are numbered, according to what is then their *apparent* merit; and they are divided into *sections* of from fifteen to twenty each; those highest on the roll being placed in the first section; those next in the second, &c. Usually there are four of these sections. The professor usually teaches the first section; his assistant the second, and so on. It is obviously a decided advantage to be in the first section, and there is usually a struggle to get there. But, a cadet may change his position in his class, at any time, by his own efforts. This he can only do, however, by more strenuous efforts. Then, if he be in the second section, he may at the end of the year be found to have a higher aggregate of good marks in study and conduct than some of those in the first section. In that case he will be transferred. Thus the ambition of the student has always placed before it the possibility of higher class rank, and if his talents and industry are capable of it, he will attain it.

The *method* of study at West Point, which in all institutions is the important point, is the *rigidly demonstrative*, in those studies which admit of it, and the *positively practical* in those which do not. The course of studies requires this, if the subjects of study are to be thoroughly understood. There is little of the purely metaphysical or transcendental known or pursued at West Point. No abstract speculations or merely theoretical inquiries occupy their minds. It is the actually knowing, and doing, in which they are engaged. As far as can be made practically useful, the oral method is pursued. In mathematical and mechanical, engineering and tactical studies, this is largely the case. The blackboard, we have said, was first introduced into this country by Professor Crozet, at West Point. How largely this is used in all institutions of education now, our readers well know. It has proved one of the most efficient means of instruction at West Point. The student of the mathematical section, for example, begins with a text-book on Algebra, in his hand; but, it is on the blackboard where the workings of his mind are chiefly exhibited. He learns what he can from the book, but, on the blackboard the professor makes him trace out what he has done, not merely by telling what he knows, but what he don't know; detects his weak place, and forces his mind (so far as such force is possible,) to *think*, and think rightly on the subject before him. This *thinking*, we need not tell experienced teachers, is the great thing which education is to teach. If a student can not, or will not think studiously and industriously, he will not long remain at West Point. There is not, as in civil colleges, the great fallow field of poetry, history, and metaphysics, in which he may show his classical professor that he has acquired rich things, although ignorant of mathematics. It will not do to say that he has wandered with Greeks and Romans around the ruins of Troy, or by the waters of Babel. There is no such compensating principle in the system at West Point. The cadet must study what is set before him; must study it hard; must think upon it, and discipline his mind to systematic modes of thought.

2. This leads us to the Specific Discipline of the Academy. This is partially included in what we have already said. The intellectual discipline is mainly maintained by the method of study; but there is a grand and perfect system of discipline, which we may briefly describe. The term DISCIPLINE is derived from disciples, *discipulus*, and means originally *teaching* of knowledge; but this is not all, nor entirely its modern sense. Discipline is *training* in knowledge and virtue, in order and diligence, in good conduct, and good habits. To do this requires a control of the body as well as mind; of food and raiment; of time and exercise; as well as the imparting of facts and ideas. It was in the former sense rather than of the latter, that the word EDUCATION, (to lead forth,) was understood among the ancients, and so far as they went they were right. It was this *discipline* in virtue, temperance, courage, fortitude, and self-denial, which was taught in the days of Persian Cyrus, and Greek Leonidas. It was adopted among the early Christians; but, Cowper well said:—

"In colleges and halls in ancient days,
When learning, virtue, piety, and truth
Were precious, and inculcated with care,
There dwelt a sage called Discipline.
* * * * *
But Discipline, a faithful servant long,
Declin'd at length into the vale of years."

Nothing can be more certain than the decline of "discipline" in modern civil institutions. "Colleges and Halls" advertise a much enlarged course of studies; they call to their aid the most learned professors; and they proclaim "all the modern improvement," and yet it is quite certain, that a pupil can walk for years their learned halls, and at last receive the honors of graduation with a very small share of either learning, diligence, or virtue. Civil institutions may be most excellent for all, who either by early care or natural inclination are willing to use their opportunities for their intellectual or moral advancement. Nay, more, all open irregularities will be corrected, and all possible means afforded for spiritual improvement. But there are two things impossible to overcome—the popular and almost universal license allowed youth, (under the name of freedom) and the total want of any ultimate power to restrain it. These stand directly in the way of thorough discipline. At a Government Military Institution, this is directly reversed. The very first thing taught is *positive obedience.* The cadet can not be a week at West Point without knowing that he can not govern himself, but must be governed by others. If he is either not fit or not willing, the faculty meet the case in short and decisive language: "If you are either unable or unwilling to pursue the course of study and discipline, we direct you must instantly go. There are plenty more worthy to fill your place." There is, then, no alternative for the cadet but to go forward, and exert himself to the utmost, or not to go at all. There can be no loitering by the way, to slumber in idleness, or waste in dissipation, or pursue the pleasures of literature. There is no doubt that this stern and constant discipline is the great merit of West Point. It acts on the whole conduct and character. We have already said, that the class-standing determined by the merit-roll, determined their position relatively, and their rank in the army, and by consequence, great distinctions and differences in after life.

Let us see how this merit-roll is made up. The *first* thing done is to *mark* each cadet with a *figure* (having relation to an agreed scale of numbers,) for every act done or undone, in study, conduct,

drill, attention, &c. The *second* is to agree u
of each study, conduct, &c., in aggregating t
negative performance of a cadet, in his whole
The summation of these for any one year gi
for that year, and the summation for the w
standing at the time of graduation, and his ra

Formerly, and we believe yet, the mode
ming up for standing, was this. Each professo
one performance one of seven marks, from—
purely artificial may be changed. But it is i
ing is made. Then in regard to *relative va*
duct, the scale formerly was:—

Mathematics, ...
Philosophy and Mechanics, .
Engineering and Military Science, .
Chemistry and Mineralogy, .
Moral and Political Philosophy, .
Conduct, ...
Infantry Tactics, . . .
Artillery Practice, . .
French, ...
Drawing, ...

To obtain 2,100, the aggregate, a cadet mu
a recitation, or been absent from a military d
least particular. This most rarely if ever h
short more than 100, is evidence of very high

It is evident, that under this system, emula
and, in fact, there must be a constant, unrem
ate at all. The general result is, that not mo
appointed are graduates. At the first sem
many drop off; several more at the end of th
at the end of the second. Nearly all who su
are graduated.

The only remaining point, peculiar to the s
is that of Military Exercises. As a Militar
a necessity, but it has also a great advantag
ical Education. This is a kind of education
and for which civil colleges afford little op
couragement. The ordinary games, amusem
field are relied upon to afford development
natural tastes the only guide. So thought n
Greek Philosopher, or Roman Senator. In

education of the body was a principle, and a practice, with all the civilized nations of antiquity. There was a constant attention to this in the training of youth; and the Olympian Games, the Gymnastic Exercises, and the Gladiatorial Shows, all had reference to this principle. If heathen nations could thus wisely attend to the healthy development of their bodies, can Christian people safely neglect it? There is no question that the Christian law of temperance, daily labor, good temper and amiable dispositions will do much to preserve health and strength. The health of the mind goes far to make the health of the body; but we must recollect that all students, properly so called—men who are set apart for the cultivation of learning and science—the *savans* of a country, are cut off at the very beginning, from that *daily labor* of the body, which in the dawn of human history was declared to be the necessity of man's existence. There is, therefore, a positive need of supplying by some system of salutary exercises, the place of that labor in which the farmer and mechanic are constantly exercised. What shall it be? Our common classical institutions have left this almost entirely to the student's own choice. Several hours of the day are left to the student to employ as he pleases. Does not experience prove, that he is quite as apt to employ this in novel reading, or playing cards, or visiting, or (in the case of an ambitious pupil,) in studying or reading the classics, as in any systematic method of exercise? Let the early dead of consumption, the victims of dissipation, and the unhappy subjects of chronic diseases, teach the living, that education consists not merely in spurring the mind on to intellectual feats, however admirable. The bird soars through the mid-heavens, but soars on the strength of his wings; and if he had the soul of Socrates, would still fall, when they are exhausted.

The military exercises, at West Point, accomplish some great results. They give an admirable exercise to the body, and they occupy time which might be wasted, and they compel the cadets to give up late night studies. Let us begin with the last. Nothing is more common among the ambitious students of colleges, than to sit up late at night. To burn the midnight oil, in order to accompany every thought in the realms of Plato, or fight with Hector on the plains of Troy; or pursue the phantom of metaphysics, or the genius of literature through the bright worlds of fiction, is the common boast of scholars. They have little thought, till too late, that life was shortened, and happiness impaired, by every hour taken from the natural period of rest. At West Point this evil is avoided, not so much by force of command, as by that of wise arrangements. At the dawn of day, even in the shortest days, the shrill fife and rolling drum summon the cadet to his morning duties, and with the exception of the hours of meals, there is one incessant pressure upon him for bodily and intellectual labor, till ten at night. The results of this is, that when the hour of retirement comes, he must have more than human strength, who is not ready and willing to lie down and sleep. There are, of course, exceptions; but, at West Point, they are rare. The lights are put out at 10 o'clock, and the weary student is ready to retire. Thus, the system of discipline at the Military Academy at once strengthens the body, stimulates ambition, prevents idleness, and compels the mind to pursue the objects of reason, rather than the charms of imagination.

Having thus traced very briefly the history, studies, and discipline of West Point, it is only just to say something upon the fruits it has produced. These are divided naturally into two classes; the work of the *Professors*, and the performance of *Graduates*. The former is little noticed in the accounts of our colleges, except in the reputation of some distinguished men; but the latter, (the divines, lawyers, and statesmen who have graduated,) make the glory and the ornament of the triennial catalogue. Let us see if something has not been produced by West Point, which, in regard to the peculiar objects and teaching of the Academy, may bear a favorable comparison with the catalogue of any institution for the last half century. We do not mean in regard to the learned professions, for if West Point had excelled in these departments, it would have utterly failed in those for which it was made. But, we mean in the great field of science and of usefulness. First, let us look at some of the fruits produced by its professors, especially in the production of *text-books*. In the history of instruction at West Point, we have stated the total absence in the beginning, of text-books on some subjects, and the unfitness of those on others, even the common studies of Mathematics. The first text-book on Descriptive Geometry, published in America, and we believe, the English language, was prepared by Professor CROZET; but, as he then understood our language imperfectly, and had little taste for authorship, it was soon supplanted, by a complete treatise prepared by Professor Davies. On that subject, as on the subject of Engineering, there was no systematic treatise; and for a time, West Point got along by oral teaching, and such collateral aid as could be had. The utter deficiency of suitable books may be known by the fact, that the first really tolerable text-books on mathematics were translations of La Croix, Bourdon, Biot, &c., French authors. The French methods of writing and teaching science are, on most topics, the best. Their style is clear and analytical. The English treatises are clumsy, being what is called in literature, elliptical, having vacancies in the reasoning, to be supplied by the student. The next great and permanent improvement in books, were the mathematical works of Professor Davies, a graduate of 1815, when the Academy was yet in a chrysalis state; he was several years a teacher before he conceived the idea of supplying a new series of mathematical text-books. His first plan was to adopt the best French works as a basis, and modify them, so as to be adapted to the American course of instruction. In this manner were prepared "Davies' Legendre," (Geometry,) and subsequently "Davies' Bourdon," (Algebra.) Other treatises were prepared on his own plan, and thus, for many years, Professor Davies pursued the quiet and laborious task (independent of other avocations,) of preparing an entire course of mathematical text-books. In time he modified these again, so as to fit them for the best colleges, and the higher schools. From the smallest mental arithmetic, to the profoundest treatise on the Calculus, he has produced clear and admirable text-books on every topic of mathematical studies. Many other good books have been prepared by professors in colleges, but there is no part of the United States in which some one of Davies' works is not taught in schools and colleges. Gradually, the civil institutions have been, in some degree, brought up to the standard of West Point, in mathematical studies.

In more recent years, Professor Bartlett has published his treatise on Optics; Professor Church, on the Calculus, and Professor Mahan, on Field Fortification, and a treatise on Civil Engineering. Various other works on military subjects have been contributed to the stock of knowledge, by graduates of the Academy.*

Thus have the graduates of West Point, by disseminating in text-books, and teaching the higher knowledge, and better methods pursued there, in fact, and beyond dispute, *elevated the entire standard of education in this country*. Contrast, for example, the text-books of Day, Hutton, Enfield, Gregory, &c., which were the only ones to be had on mathematical science in 1818, with those now in use at West Point, New Haven, or Princeton. Contrast the methods of study before the blackboard, the art of drawing, the system of rigid demonstration, and of exact scales of merit were introduced, with those now in use in the higher schools of science, and we shall be satisfied that West Point has done a great and most useful work in elevating the standard of education. This is one fruit of its production, which has been altogether too lightly estimated. If it be of importance to increase the number of blades of grass, it is of much more importance to increase the number of minds fitted to enjoy the works of God, and use beneficially the gifts with which he has intrusted them.

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* The authorship of West Point has been quite extensive; too much so to enumerate here. Among the works of its graduates, we may mention the "Political Manual," "American Education," and Statistical Reports by Edward D. Mansfield, the "Review of Edwards on the Will," by A. T. Bledsoe, and the Military Tactics of Generals McClellan, and Halleck. The Educational Works of Mr. Mansfield have been before the public for many years, and studied in all parts of the United States. In this class also may be mentioned the editorial labors of some twenty of the graduates, some of whom have had no small influence on public affairs.

A more obvious and commonly remarked fruit of West Point, is the *men*, laboring in their vocations, which it has produced. It is impossible here, (though it would be a labor of love,) to note the individual examples of merit and usefulness, among those whom West Point has sent into the service of their country. We are here limited rather to a statement of general results. It may be done briefly; and since we have seen no Register later than 1850, we must deal in round numbers. These, however, will approximate the precise facts. They are there statistically:—

Whole number of Graduates, (about)	2,000.
Killed in battle,	80.
Died in service,	300.
In military service of the United States now,	800.
Have been in political service (ministers, governors,) mayors, and members of congress, and of legislature,	80.
Other civil and state offices,	100.
Lawyers,	110.
Clergymen, (including two bishops,)	16.
Physicians,	110.
President of colleges, professors and teachers,	100.
Authors, editors, and artists,	25.
Civil engineers, and officers of R. R. and canals,	180.
Merchants, financiers, farmers, and manufacturers,	140.
Officers of militia, and volunteers, (not of the army,)	110.

Numbers have resigned, and died young, not above enumerated, and numbers of these also have died in the civil service. We have made this classification to show how largely West Point has contributed to education, civil engineering, and the professions. These were not the direct objects of the Academy; but, when long years of peace presented no duties but that of the garrison, and no glory to the profession of arms, it was natural and proper for active and ambitious young men to seek honor and usefulness in other pursuits. Nor did the government discourage this, for it foresaw what has happened, that these young men, so highly educated in science, would diffuse this knowledge throughout the country; elevate the standard of education, and be ready when their country needed their services. This has happened. A better knowledge of the exact sciences has been carried into the colleges; the railroads and canals have been built by engineers ready furnished by the government; and now when half a million of men have been suddenly called to war, they have been largely officered by the graduates of West Point. Here we may briefly allude to the most grave fact which has been urged against the Military Academy. The best officers of the rebel army were educated there. Why is this? Is there a want of sound morals? or, is loyalty no virtue there? Neither. A part, and *a part only*[*] of the graduates born and grown up in the south, have gone with their friends, families, and connections, into the rebel service. This was on account of social ties, and had no more to do with West Point, than had other rebels from Harvard, or Yale, with those institutions. The noticeable fact is that they were educated at the government expense, and therefore under peculiar obligations to the country. But we find a parallel in the numerous officers of the state, as well as of the army and navy, who had been honored and rewarded at the public expense, but who thought it no shame to betray their country, and conspire against its life. We in vain attempt to account for such crimes, except upon the principle of common depravity, of which history has furnished similar examples in all ages of the world.

We have come to the end of the work we proposed. The rise, progress, and fruits of the Military Academy, we have briefly, and, we trust, justly delineated. Certainly, we have no end to serve, no prejudice to gratify. We knew the Academy in its early and immature period. We have seen it grow up to usefulness and honor. We see its graduates taking their places among those who have well served their country, and well deserved its laurels. In this we are *glad*. But our memory is filled with other images. We see West Point, in the now lengthening shadows of time. We seem to see those with whom we studied freshly present, as they walk the green plain, or sit before the class, or strive to teach our dull and inattentive minds. They were men worth remembering, and when, in after times, we became their friends, rather than their pupils, still more pleasant memories gathered around them. We seem to see the venerable ELLICOTT, like Goldsmith's schoolmaster, alike full of learning, and of kindly humor; the placid and intellectual expression of MANSFIELD, whose abstracted looks seemed to be searching the higher philosophy; the courtly and dignified THAYER, whose graceful manners and attractive conversation can not be forgotten by any who knew him; and the amiable COURTNAY, who though of later date, will long be remembered. He left the world in doubt, whether he was the better scholar or the better man.*

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[*] We should not forget that a large number of West Point graduates from the south, (Maryland, Virginia, Carolina, and Tennessee,) have remained *loyal*, in spite of all the influences of social and political ties.

Of these, and of those like them, do we think, when we think of West Point. Nor of those alone; the place itself, where nature delights in the sublime and beautiful, rises before us. No imagination is necessary to clothe it with the hues of poetry; no books to recall the lost passages of history; no labored eulogy to bring up the memories of the dead. You can no more forget them, than you can the Pilgrims, when standing by the rock of Plymouth. Yon gray and moss-covered ruin was once the fortress of the Revolution. Yon scarcely perceptible pile of stones marks the spot where its soldiers were hutted in the winter. Yon slightly raised turf, beneath the dark shades of the cedar, was his grave, and soon, perhaps even now, that slight memorial will be gone forever. Yon little valley under the shadows of the mountain, recalls the illustrious name of Washington. Yon blue mountain-top tells of the beacon fires he lit. All around are memories; all around are sacred spots. If the Greek remembers Marathon; if the Jew lingers at Jerusalem, or the Christian pilgrim grows warm at Bethlehem, so should the American remember West Point; linger round the ruins of Fort Put, and gaze with delight on the blue summit of Beacon Hill.

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* Mr. Courtnay was afterwards Professor of Philosophy and Mechanics in the University of Virginia. There he died, lamented by all who knew him.

DEVELOPMENT OF INSTRUCTION AT WEST POINT.

1. Down to 1802, the instruction of the Cadets attached to the Corps of Artillerists and Engineers stationed at West Point, according to Act of Congress (May 7th, which was all that repeated recommendations of Washington and other experienced officers could obtain), was confined to military drill and practical exercises in common with other members of the Corps; but as that Corps was made up of the scientific officers of the army, and as military works were in construction under their plans and superintendence, these exercises were of great practical value, and the appointment of these Cadets in 1794, and their gathering at West Point, may be regarded as the nucleus of the Military Academy.

2. The Military Academy, established with that name, by Act of March 16, 1802, in pursuance of a Bill reported in 1800, by the Committee of Defense in the House of Representatives, of which Harrison Gray Otis was chairman, and to which an elaborate report of the Secretary of War (James McHenry, of Maryland), had been referred—consisted of the Corps of Engineers, which by the Act was organized distinct from that of Artillery, and could not exceed in officers and cadets, twenty members. The Corps was stationed at West Point, and its officers and cadets were subject to duty in such places as the President should direct. The principal engineer was made superintendent, and down to 1808 he was instructor in fortifications, field-works, and the use of instruments. Two officers of the rank of captain, appointed without previous military experience, but with special reference to their knowledge of mathematics, gave instruction in that branch, "one in the line of geometrical, and the other of algebraic demonstration."

In 1803, two teacherships—one of the French language and the other of Drawing, was attached to the Corps of Engineers, and in 1804, F. De Masson was appointed to discharge the duties of both.

In 1808, the basis of the Military Academy, so far as related to the number of Cadets, was enlarged by the addition of two for each new company of Infantry, Riflemen, and Artillery, added to the military force; and the number in the Act of 1812, is limited to 250, which with the ten originally attached to the Corps of Engineers, fixed the strength of the Cadets at 260.

By the Act of April 29, 1812, the Corps of Engineers was enlarged, and was again constituted the Military Academy, and in addition to the teacher of the French language, and Drawing, provided in Act of Feb. 28, 1803, one Professor of Natural and Experimental Philosophy; one Professor of Mathematics; one Professor of Engineering in all its branches; and for each an Assistant Professor taken from the most prominent characters of the officers or cadets, are provided for; and for the purposes of military instruction, it is ordered that the students shall be arranged into companies and officered from their own members, to be taught all the duties of a private, non-commissioned officer, and officer; and for instruction in all matters incident to a regular camp, shall go into camp for at least three months of each year, and erecting buildings and providing apparatus, library, and all necessary implements, the sum of $25,000 is appropriated. By this act the minimum of age is fixed at 14, and the literary qualifications of candidates on entering are to be well versed in reading, writing, and arithmetic.

III. CONDITION IN 1871.

I. GOVERNMENT AND ORGANIZATION.*

A MILITARY officer, not usually below the rank of colonel, is appointed by the President of the United States as *superintendent* of the Academy, who has supreme local control over both the studies and discipline of the institution. He renders all prescribed returns, and addresses his communications to the *inspector*.

The *inspector* of the Academy is an officer of rank in the army named by the Secretary of War, who has his residence at Washington, and through whom all general orders relating to the Academy are transmitted to the superintendent at West Point. He makes an inspection of the Academy at least once in each year.†

The general staff of the Academy consists of an adjutant, a quartermaster, a treasurer, one surgeon, and two assistant surgeons.

Although the system of the Academy as regards the training of the cadets both in and out of study is peculiarly and rigidly military, the staff of instruction is separate from the staff of discipline.

Military Staff.

The cadets are organized into a battalion of four companies.

The *commandant of cadets*, usually not under the rank of lieutenant-colonel in the army, exercises the immediate command of the battalion. He is also, *ex officio*, principal instructor in infantry, artillery, and cavalry *tactics* (signifying drill).

Under the commandant are six *assistant instructors of tactics*, viz.—one for artillery; two for infantry; one for cavalry; one for artillery and infantry; one for infantry and cavalry. The four senior of these officers command the four cadet companies respectively; the two junior officers being always available to perform the routine duties of the others in case of absence. The assistant instructors must be officers of the army.

The battalion is provided with a full complement of *cadet* officers, and non-commissioned officers, who are appointed by the superintendent from a list submitted by the commandant of cadets.

To each company are appointed

- 1 Captain,
- 3 Lieutenants,
- 1 First Sergeant,
- 3 Second Sergeants,
- 4 Corporals.

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* From Instructions for government of the U. S. Military Academy, Report of Board of Visitors for 1871, and an account by Col. McDougall in Report of English Military Commission.

† The duties of Inspector are now (1871) discharged directly by the Secretary.

The battalion staff consists of

1 Adjutant, 1 Sergeant Major,
1 Quartermaster, 1 Quartermaster Sergeant,

The cadet companies are composed indiscriminately of the four classes into which the students are divided according to their respective years of residence, the period of residence being four years for all.

The cadet officers are taken from the first, or senior class; the sergeants from the second class; the corporals from the third class. The selection is not made with special reference to proficiency in study. Those are selected who have manifested the greatest military aptitude and respect for discipline in their own conduct; although *cæteris paribus* superior standing in study would be decisive.

Staff of Instruction

The general superintendence of the studies is exercised by the superintendent, acting with the Academic Board. The immediate staff of instruction is as follows:

One professor,	Military and civil engineering.
One assistant professor,	
Two acting assistant professors,	
One professor,	Natural and experimental philosophy.
One assistant professor,	
Two acting assistant professors,	
One professor,	Mathematics.
One assistant professor,	
Five acting assistant professors,	
One professor,	Drawing.
One assistant professor,	
One acting assistant professor,	
One professor,	French.
One assistant professor,	
Three acting assistant professors,	
One professor,	Spanish.
One assistant professor,	
One acting assistant professor,	
One professor,	Ethics and Law.
One assistant professor,	
One acting assistant professor,	
One professor,	Chemistry, mineralogy, and geology.
One assistant professor,	
Two acting assistant professors,	
One instructor,	Ordnance and gunnery.
One assistant instructor,	
One instructor,	Practical military engineering. Military signals and telegraphing.
One assistant instructor,	
One sword master.	

The Academic Board consists of the Superintendent, the Commandant of Cadets, the Professors of the Academy, and the Instructors of Practical Military Engineering, and of Ordnance and Gunnery.

All the professors and instructors, with their assistants and acting assistants, have been educated at West Point, with exception of the chaplain, the professors of French and Spanish, and the sword master. All are regularly enrolled in the military service of the United States, and subject to military discipline.

Professors and Assistants.

The professor or chief instructor in each branch is responsible for the efficiency and uniformity of the system of instruction in his own department. To this end he has no special class or section assigned to him for tuition. His time is devoted to general superintendence, and is chiefly spent in visiting the halls of study of his assistants. He does, however, take the instruction of the different sections, each in their turn, as he sees fit, and occasionally assembles all the sections of his department for lecture.

The assistant and acting assistant professors or instructors are always appointed from among officers on the full pay of their regiments who have graduated at the Academy, on the recommendation of the professor or chief instructor of the branch in which there is a vacancy to be filled. These assistants are carefully selected through means of the data of their proficiency, temper, and general character, afforded by their record of four years' residence as cadets. They are, thus, all of them previously well known to the professors to whom they are to act as assistants, and to whom they are naturally inclined to defer from old associations.

The term of duty at the Academy of the assistant and acting assistant professors and instructors is fixed at four years, at the end of which period they return to regimental service. Duty at the Academy is obligatory on every officer who may be selected for it, and is considered as part of the general service which every officer who has graduated at West Point, owes to the country; practically those only are selected to whom the duty is not disagreeable.

Admission

Each congressional or territorial district of the United States (*i. e.* each district entitled to return a member to Congress), is by law entitled to have one cadet receiving education at the Academy.

The nominations are made in each year by the Secretary of War, on the recommendation of the representatives in Congress of the several districts then unrepresented at the Academy, or whose representatives are about to quit the Academy. In addition to these, the President of the United States may nominate ten cadets in each year, to be selected according to his own will and pleasure, from the community at large.

The number of vacancies at West Point in any one year varies according to the number of cadets who happen to complete their period of residence, and of those, who, not having completed their term, are yet discharged as deficient in studies or discipline, as hereafter explained. The number of yearly admissions varies from 50 to 70.

The date of admission in each year is the 1st of July, and the candidate for admission is required to report in person to the superintendent before the 31st of May, with a view to his qualifications being tested. But if sickness or any other unavoidable cause should interfere, he may present himself on the 28th of August. Except at the two periods above named, no admissions can take place.

Candidates must be over 17 and under 22 years of age, except in the case of any candidate who may have served faithfully as an officer or enlisted man in the army of the United States, either as a volunteer or in the regular service during the late civil war, who may be admitted up to 24 years of age.

Candidates must be at least five feet in height; free from any deformity, disease, or infirmity which would render them unfit for military service; and from any disorders of an infectious or immoral nature. They must be able to read and write well, and be thoroughly versed in the first four rules of arithmetic, in reduction, in simple and compound proportion, and in vulgar and decimal fractions.

Although the examination for entrance is not difficult, the prescribed tests, both medical and intellectual, are rigidly applied, and many candidates are rejected.

The examination for entrance is not competitive, but simply a qualifying examination. The competitive system commences after a cadet is once admitted; it enters into every branch of instruction, and continues in full force to the end of his residence.

Subjects and Course of Study.

The length of the course of study, for all who may succeed in graduating, is four years; its nature, after the first year, is principally professional, and the course of study is identical for all the students. The subjects are not all studied simultaneously, separate periods of the course being devoted to certain subjects, as shown by the time tables annexed.

The relative importance of the different subjects is indicated by the maximum marks of merit assigned to them respectively, at the summing up of the results of each student's attendance at the end of his fourth year, according to the following scale:—

Subjects.	Maximum.	Period of Attendance.
Mathematics,	300	2 years
Natural and experimental philosophy,	300	1 year.
Military and civil engineering,	300	1 "
Chemical physics and chemistry,	150	1 "
Ethics and law,	150	1 "
French,	100	2 years.
Drawing,	100	2 "
Spanish,	75	1 year.
Mineralogy and geology,	75	1 "
Ordnance and gunnery,	75	1 "
Infantry tactics (theory),	50	1 "
Artillery " "	50	1 "
Cavalry " "	50	1 "
Discipline,	300	
General merit,	2,075	

Practical instruction in surveying; in fortification; in ordnance and gunnery, including the loading, pointing, and firing heavy guns; in drill, or, as it is termed, the tactics of the three arms; in interior economy and regimental duty; forms an important part of the training of the cadet at different periods during his residence. In addition, the months of July and August in each year are entirely devoted to practical instruction, the battalion being then placed under canvas and relieved from all study.

During his first year a cadet receives instruction in fencing three hours in each week, from 15th October to 1st April.

During his second year he receives instruction in riding three hours in each week, from 1st November to 15th March.

Throughout the whole of his third academic year, from 1st October to 1st July, he receives instruction in riding, excepting between the 1st February and 15th April.

Throughout the whole of his fourth academic year he receives instruction in riding, three days in each week.

Swimming is not taught at the Academy. There is a good gymnasium for the use of the cadets in recreation hours, but the practice of gymnastics is purely voluntary.

Classification for Instruction.

The cadets are ranged in four distinct classes, corresponding with the four years of residence. Cadets of the first year constitute the fourth class; those of the second year, the third class; and so on. Cadets are promoted from one class to another at the end of the academic year, 30th June; provided only that they shall have passed satisfactorily before the Academic Board in the examinations which are always held during June, failing in which, they are either kept back in their then class for another year, or, in the case of decided deficiency, discharged from the Academy.

Each class is divided into sections convenient for instruction in the different branches of study. The method of division will be best explained by taking the fourth or lowest class as an example.

The members of the fourth class are, on their admission to the Academy, arranged in alphabetical order, and are then formed into sections, averaging about 12 cadets for each branch of study. After the lapse of a month, transfers are made at the close of each week from one section to another, according to the results of the past week's attendance in study, and so continue until those most advanced are found in the first section; the next in order, in the second section; and so on.

During the first six months of residence, cadets are on probation, and only receive their *warrant* as cadets, provided they shall have passed satisfactorily at the January examinations held before the Academic Board, and that their conduct shall have been satisfactory.

Before receiving his *warrant*, each cadet is required to sign an engagement of service in the United States army for eight years, and to take an oath of allegiance to the National Government and Constitution.

The hours allotted to study are divided nearly equally between attendance on the instructors in the halls of study—or *section rooms*, as they are termed—and independent study in quarters. The attendance in the section rooms is termed *recitation;* the independent study in quarters, *study.*

The theory is, that during each recitation, every cadet of the section attending it, shall receive a thorough *viva voce* examination illustrated on the blackboard, and there is not much practical variation therefrom. Where there is any departure from it, it arises from the number of cadets in a section being too large to enable them all to be examined during the same recitation, which lasts an hour and a half, or an hour, according to the subject. Recitations in mathematics, in natural and experimental philosophy, and in civil and military engineering, occupy one hour and a half; in all the other branches of instruction, only one hour. Thus, when it appears in the time table that a class attends mathematics, for example, from 8 to 11, it is to be understood that the sections forming one half of the class attend their respective teachers in the section rooms during an hour and a half, while the other half of the class is engaged in study in quarters. At the end of the first hour and a half those sections which have attended recitation return to their quarters to study, while their places are taken by the remaining sections which have been up to that time engaged in study in quarters.

Each teacher, as a general rule, has two sections specially assigned to him for instruction, excepting the professor or head of each department who, as has been already explained, devotes his time to general superintendence, and takes the different sections for his personal instruction at such times and in such order as he may judge best.

Before proceeding to the section rooms the different sections parade in the barrack square by sound of bugle, under the superintendence of the cadet *officer of the day;* the roll is then called by the senior cadet, who is termed the *section marcher*, who reports absentees to the officer of the day, and marches his section off to the section room by direction of the latter. Arrived in the section room, the section marcher causes the cadets to take their seats in the order of their names on the roll, and then hands them over to the instructor. When dismissed by the instructor, the section marcher forms his section as before, marches it back to the barrack square, reports all infractions of discipline which may have taken place either in study or on the march to the officer of the day, and then dismisses his section by the latter's permission.

There is no system of private tuition recognized at the Academy. Each cadet must depend on his own exertions, aided by the explanations given by the instructors in the section rooms, and by the occasional assistance he may derive from his more advanced comrades.

The allotment of so large a portion of time to independent study is a great departure from the practice of military schools in Europe; and it is a remarkable feature in the West Point system that no continued supervision is exercised over the cadets when studying in quarters beyond that which is supplied by the discipline of the cadets themselves. The senior of the two cadets inhabiting each room is responsible for discipline and orderly behavior. The officer of the day (cadet) visits each room during the hours of independent study; and the *officer in charge*, who is detailed daily from the assistant instructors of tactics, also visits the rooms at his discretion.

Routine of Daily Work.

A full-dress parade of the battalion takes place every day at sunset, after which the cadets are marched to supper, the hour of which varies with the season of the year, but is never earlier than 5.30 p. m. Half an hour after supper the evening call to quarters is sounded for study in barracks until tattoo at 9.30. All cadets excepting officers, the non-commissioned officers of the battalion staff, and the first sergeants, must be in bed and their lights extinguished at 10 p. m., the hour for the signal of *Taps*.

The arrangement of time on Sundays is as follows:

Breakfast at 7 a. m.
Full-dress parade and inspection at 8.
Call to quarters for *study in barracks* at 9.
Church call at 10.30.
Recreation after church.
Dinner at 1 p. m.
Recreation.
Call to quarters for study, 3 to 5 p. m.
After 5 p. m. the arrangement of time is the same as on a week day.

Cadets may obtain leave from the Sunday afternoon study in barracks to attend church a second time, should they desire it.

There is no yearly vacation. When a youth enters West Point, he is fixed there, unless discharged, for four years without intermission, with the exception of two months' furlough which he may obtain at the end of his second year on certain conditions, and which is subject to a scale of diminution graduated according to misconduct.

This discipline would be intolerably severe but for the relaxation afforded by the change from barracks and the section room to camp life. The battalion is encamped from about 20th June to 30th August, and during that period the time is exclusively devoted to military exercises, practical instruction, and amusement.

Proficiency in Study—Examinations.

The system of estimating proficiency in the different subjects studied is very elaborate. Each instructor keeps daily notes of the proficiency of the cadets forming the sections of which he has the charge; the degree of excellence shown by a cadet at any recitation being recorded by marks, 3 being the maximum for each lesson, which represents *thorough* proficiency; 2·5 signifies *good;* 2 *fair;* 1·5 *tolerable;* 1 *very imperfect;* any thing below 1 is recorded as 0, or complete failure.

A weekly report showing the daily credit of each cadet and the aggregate for the week, is handed in by each instructor to the professor or head of his department at the end of the last study on Saturday, and the professor personally delivers the weekly reports of his department to the superintendent at the office of the latter between the hours of 12 and 2 p. m. on the same day. The professor at the same time recommends such transfers of students from section to section as he may think proper. The aggregate weekly credits of each cadet in all the branches of instruction are then recorded in the superintendent's office.

From the weekly class reports, and the monthly record of discipline, a consolidated report of the progress of the Academy is made up monthly and forwarded to the inspector of the Academy, who transmits an abstract of the same to the parent or guardian of each cadet.

The weekly class reports form the most important element in determining the relative standing of the cadets in their class at the period of graduation, but a verifying test, or corrective, is supplied by the examinations which take place in January and June, the method of conducting which is as follows:

The January examinations commence on the 2d of the month. The examination of the 4th or lowest class is conducted by the whole Academic Board, the constitution of which has been already detailed. The relative standing of the members of the fourth class, up to that time arranged alphabetically, is then determined by the summing up of the weekly class reports, verified or corrected by the results of the examination. A large proportion of the cadets of the fourth class, usually from one-sixth to one-eighth of the whole, are yearly pronounced to be *deficient*, and removed from the Academy at this their first examination, which on account of its importance is required to be conducted by the whole Academic Board. The examinations of the three other classes take place before committees of the Academic Board, the whole Board being divided into two committees for this purpose.

The June, or *annual* examinations, commence on the first of the month. The first or graduating class alone is examined by the entire Academic Board, and the final relative standing of the cadets determined. The remaining classes are examined before the two committees of the Academic Board.

The June examinations take place in the presence of the *Board of Visitors*, the members of which are specially appointed in each year by the President of the United States, and whose duty it is to report to the Secretary of War, for the information of Congress, on the state of discipline, instruction, &c., &c., of the Academy.

The senior assistant professor or instructor of the branch under examination is *ex officio* a member of the Academic Board or of the committee thereof which conducts such examination; and the immediate instructor of the section to be examined is likewise associated with the Board or its committee so far as relates to the examination itself and the arrangement of the section in order of merit.

Classification according to Marks.

To assist the Academic Board in determining the accurate classification of any section about to be examined, the immediate instructor of that section hands to the Board, before the examination commences, a roll in the order of merit in which he considers the members should stand, based on the weekly credits which he had himself assigned.

At the close of the examination the same instructor hands to the Board a second roll in the order in which he conceives the members of the section should stand, judging by the result of the examination. The instructor then retires and the Board proceeds to deliberate.

Each member of the Board having kept careful notes of the examination, the relative standing of the cadets of a section in proficiency is determined by discussion.

The question next arises, who, if any, are to be pronounced *deficient?*—a dictum which inevitably entails discharge from the Academy, or putting down to a lower class.

The different sections composing the class, having been arranged in one class list in order of merit; one of the Board, usually the professor of the department concerned, supposing *e. g.* the class to consist of 50 members, may move that No. 50 be declared deficient. If the motion is negatived on discussion, the salvation of No. 50 proves also the salvation of all standing above him. But if the motion be carried, Nos. 49, 48, 47, &c., may be pronounced deficient in like manner, and so on, until a number is reached which is not condemned.

The examinations are entirely *vivâ voce.* Each cadet is subjected to a searching oral examination of from seven to ten minutes, illustrated on the blackboard where the subject admits of it. The daily record of the proficiency of a cadet in any subject forms, as already stated, by far the most important element in fixing his relative standing among his classmates: it is only exceptionally that the public examinations alter materially the order of merit which has been previously framed from the weekly class reports.

At the close of each examination the Academic Board reports to the Secretary of War the names of all cadets who are pronounced deficient in studies or discipline, to be discharged from the Academy unless otherwise recommended by the Academic Board.

The rule of discharge for deficiency, even in one solitary subject, is very rigidly enforced; unless where exceptional circumstances, such as loss of time on account of illness, or having been unavoidably prevented from joining the Academy until some time after the rest of his class, induce the Board to recommend that the cadet shall have another trial by being put back to the next lower class.

Some detail is necessary to explain how the marks obtained by a cadet at the daily recitations are employed to determine the credit he is to receive in any given branch of study at the period of his graduation.

Where a subject is studied for two years, the maximum time allotted to any branch of study, the marks gained during the first year help only to fix a cadet's relative standing in his class for the year next ensuing. The credits shown by the weekly class reports of the second year alone are taken into account in determining the credit due to a cadet at the end of his residence.

The exact method of fixing the credits due for any one subject is as follows. The professor makes out a roll of the class in the order of merit finally fixed by the Academic Board at the June examinations. The first on the roll then receives credit for the maximum number of marks allotted to the subject; the last on the roll receives a credit of one-third of that maximum only. The *common difference* for all the members of the class between those limits is then calculated, and the remaining members receive credits varying from the first cadet and from each other by the amount of that common difference. The figures thus determined represent the credits assigned for any one subject at the period of graduation, and the figure of general merit for each cadet is made up of the aggregate credits obtained by him for all the branches of study, with one column included for discipline.

Proficiency in drill or riding does not affect the figure of general merit, except indirectly. Inattention or carelessness at these exercises would be noted by a certain figure of demerit, and would thereby diminish, as will be hereafter explained, the credit to be allotted for discipline at the final examination.

Graduation.

The qualifications required for obtaining an appointment to the army are simply *graduation*, or in other words that a cadet shall have passed through the four years' course at the Academy without being found *deficient* in any one branch of study or in discipline. The proportion of cadets who fail to graduate is very considerable—nearly one-half. The present first class is a fair sample. It numbered 74 on entrance, and its members are now only 39, and of these three had belonged to the next higher class, and were put back for deficiency. From 1842 to 1852 the exact proportion who succeeded in graduating was 0·510. From 1852 to 1862 the exact proportion was 0·523.

Although the ultimate consequences of idleness in being declared *deficient* at the half-yearly examinations are generally sufficient to insure diligence, an immediate penalty is attached to any adverse report against a cadet for want of attention to study, or any misconduct in the recitation halls. The instructor of any section notes on his weekly class reports any cases of decided idleness and all infractions of discipline, and to each reported instance a double penalty is attached, as to every instance of misconduct at the Academy; the one immediate, in punishment according to the scale of the offense; the other prospective, consisting of a certain figure of demerit, which will rise up in judgment against the delinquent at the end of his residence, and diminish his credit for *discipline.*

The *certainty* of the penalty which attaches to idleness, both in the immediate punishment it entails, and its more serious ultimate consequences, is found to be sufficient, as a general rule, to attain the desired object; hence the character of the cadets for diligence is decidedly high.

The members of the graduating class have their choice of the services to which they shall be appointed according to their standing on the roll in order of merit. The order of precedence of corps of the United States army is: 1, Engineers; 2, Ordnance; 3, Artillery; 4, Cavalry and Infantry; and that is, as a general rule, the order of choice. The Secretary of War may sanction subsequent transfers from one branch of the service to another, but such transfers are very rare.

Beyond the privilege of choice, the only direct inducement held out to distinction among his classmates to any cadet, is one which is purely honorary. By an order from the Secretary of War so early as the year 1818, the five cadets most distinguished in studies and discipline in each class at the June examinations, are published each year in the United States Army Register (Army List). The distinction is highly prized.

The advantages resulting from a degree or peculiar distinction at West Point after appointment to the army, in respect to professional advancement or the obtaining staff employment, are very small. No special qualification is required by law or regulation for admission to the staff. When a vacancy occurs any one who desires may make application for the vacant appointment to the Adjutant General of the army. The decision rests with the Secretary of War or the President. The head of the department in which the vacancy exists is the proper person to insist, if he thinks proper, on the possession of certain qualifications by the officer who is to be employed as his subordinate. Even graduation at West Point is not insisted on as a necessary qualification for staff employment.

Discipline.

Every young gentleman who passes his probationary examination in the January after his admission, receives his *warrant of cadet,* and signs an engagement to serve in the military force of the United States during the eight years next ensuing. He thus becomes amenable to the articles of War and to trial by court-martial.

The discipline of the Academy has no resemblance to that of an ordinary civil college, but is peculiarly and essentially military. The cadets are required to clean their own rooms, make their own beds, and clean their own arms and belts.

The staff for the maintenance of discipline is distinct from that of tuition. The professorial staff simply report infractions of discipline in study, but have no power to punish. All professors and instructors, however, as well as all military officers who may be stationed at West Point, are expected to report to the superintendent any improper conduct on the part of a cadet which may come under their observation.

The punishments to which a cadet is liable are comprised in the three classes following, viz.:—

1st. Privation of recreation, &c.; extra duty (not guard); reprimands; arrests or confinement to barrack room or tent; confinement in light prison. *Inflicted only by the superintendent or by his authority.*

2d. Confinement in dark prison. *Only by sentence of court-martial, and seldom or never resorted to.*

3d. Suspension; dismissal with privilege of resigning; public dismissal. *Only by sentence of a garrison or general court-martial, which must be approved by the Secretary of War.*

"Breach of arrest" is treated as a military offense of the worst nature, and is classified with "mutinous conduct."

All offenses are classified under five heads, and are recorded according to the following scale:

An offense of the	1st	class counts........	5	demerit.
"	2d	"	4	"
"	3d	"	3	"
"	4th	"	2	"
"	5th	"	1	"

All offenses reported or to be reported against cadets, are read out at evening parade on the day after commission, excepting offenses in the section rooms reported by the instructors, which are read out on Monday evening's parade; so that every cadet may have the opportunity of presenting a written explanation, or plea, in extenuation, of the offense charged against him.

The commandant of cadets attends at his office, in the square of the cadet barracks, between the hours of breakfast and the first study every morning to receive reports of offenses.

Explanations in writing, on paper of prescribed uniform size, may be taken to the commandant by any cadet charged with an offense not later than the commandant's second orderly hour after publication, as a general rule from which any departure requires to be explained.

If the commandant considers the excuse satisfactory, he erases the offense and tears up the excuse, but forwards an abstract of all offenses which have not been explained to his satisfaction, with the written explanations, for the decision of the superintendent.

The superintendent may, on further inquiry, find the explanations of some of the offenses forwarded satisfactory, in which case he erases such offenses. To the remainder he allots such immediate punishment, and such marks of demerit in addition, as the cases respectively justify; or he may consider the demerit marks sufficient without any immediate punishment.

Thus the offenses of which a cadet may be guilly during his residence are recorded against him by a very elaborate and just method, and rise up against him at the period of his graduation. No instance of carelessness or inattention to orders is too trifling to be taken notice of.

If any cadet has more than 100 demerit recorded against him in any six successive months, he is immediately discharged from the Academy as deficient in discipline.

But during the first year's residence, offenses count one-third less than those committed during the subsequent three years; a cadet of the first year would therefore only be discharged as deficient in discipline who had obtained a demerit of 150 within any period of six successive months.

The marks of demerit of all the fourth class cadets who have not proved deficient in discipline, are wiped out entirely at the end of their first year, and do not therefore affect their relative standing at the period of graduation. The demerit of the first year is only taken into account, so as to determine, in combination with the credits received for progress in study, the relative standing of the cadets in their class for the year next ensuing.

At the final examination, the credit to be allotted to any cadet on the score of discipline is made up by means of the demerit rolls as follows.

Each cadet receives a credit of 16·67 for every month during his residence, in which he has had no demerit recorded against him, to be deducted from his aggregate marks of demerit at the end of his residence. The monthly credit is fixed at 16·67, because that number forms the sixth part of the 100 marks of demerit, which if recorded in six months against any cadet would have occasioned his discharge.

Notwithstanding that the demerit marks of the fourth class are wiped out at the end of the first year, and do not count against the cadets at their final examination, the credit of 16·67 is still allowed to cadets for every month of their first year in which no demerit was recorded against them and deducted from their aggregate marks of demerit at the end of their residence.

The positive marks of merit for discipline due to any cadet at the end of his residence are thus determined. The cadet of the graduating class having the lowest aggregate demerit recorded against him is placed *first* in discipline, and is credited with the maximum of marks due to that subject, viz., 300. The whole class is then arranged in the same sense, the cadet having the highest demerit being placed last, and receiving only one third of the maximum, viz. 100. The common difference between these limits is then calculated for each cadet of the class, and applied as already explained.

Although the nominal value placed on discipline is represented by the same number of marks only as are allotted to each of the more important branches of study, in fixing the relative standing of cadets at their final examination; it should be remembered that no candidate can reach that period at the Academy who is not fairly well conducted. It would be quite impossible for any cadet to remain at the Academy who had earned for himself the sentence "deficient in discipline," even though the marks of demerit required for that sentence might have been earned by a succession of minor infractions of discipline. And a cadet who might be guilty of any serious willful offense would be at once removed from the Academy.

Owing to the very limited time allowed for recreation, games are almost unknown; and almost the only athletic amusement indulged in is boating on the river, for which, however, Saturday afternoons afford the only available time.

No difficulty is found to arise from the difference of age among the cadets in maintaining an uniform system of discipline. The same rules are applied to all during the whole period of residence.

The cadet officers and non-commissioned officers greatly assist in maintaining discipline. A daily abstract of offenses show that out of 15 offenses recorded therein, 11 were reported by cadet officers or non-commissioned officers.

The daily duties are assimilated as much as possible to those of a battalion in quarters, and are as follows:

The officer in charge, detailed daily from the assistant instructors of tactics, is responsible for the proper performance of all the military duties of the battalion during the day. His tour of duty commences at guard mounting (7.30 a. m. in barracks, 8 a. m. in camp), at which time he reports for orders to the commandant at the office of the latter. He has an office adjoining that of the commandant where he must constantly be present from *reveillé* to *taps* (the signal for putting out lights at 10 p. m.), except when absent on duty or at meals. He is present in the cadets' mess hall during all meals, and superintends every parade and roll call. He visits the sentries at his discretion. On being relieved, he includes in the usual morning report of his company, all offenses which may have come to his knowledge as having occurred during his tour of duty.

The officer of the day, is detailed usually from the roster of the cadet officers, although every cadet of the highest class is appointed at least once to perform this duty. He is present at guard mounting and receives his guard in the usual military manner, after which he reports for order to the commandant and is generally under the orders of *the officer in charge.* His post of duty is the guard room, which is in the same building as, and immediately beneath, the offices of the commandant and the officer in charge. He causes all calls to be sounded at the proper time; is present at all parades and roll calls; and receives reports of all absentees, whom it is his duty immediately thereafter to seek and to order when found to repair to their respective duties unless properly excused. He reports to the officer in charge all absentees whom he may not be able to find, and all cadets who fail to obey his orders. He directs the formation of all the class sections before marching to the section rooms; receives reports of absentees from the section marchers, and requires the latter to march off their sections in a proper military manner. He is responsible for the suppression of all irregularities in quarters or their vicinity during his tour. He visits the quarters during the hours of independent study and receives reports of absentees. He visits all the quarters at *Taps*, and reports absentees to the officers in charge. He afterwards visits the room of every cadet absent every 15 minutes until the return of the absentee, or until otherwise directed by the officer in charge. On the back of the guard report which he forwards next morning to the commandant, he records all offenses which come to his knowledge as having occurred during his tour; and presents with it all permits and passes that have come into his hands, all of which are required to be deposited with him. The officer of the day is relieved from study during his tour of duty.

Daily Guard.—A cadet guard, consisting of one sergeant, four corporals, and 24 privates, is mounted every morning at 7.30. The cadets of the guard remain in the guard-room during the day, excepting the hours of study.

Sentries are posted during the hours of recreation, the most important posts being the different entrance halls of the cadet barracks. Ten minutes after the *call to quarters*, during the day on Sundays, and every evening, it is the duty of each such sentry to visit all the rooms belonging to his particular entrance hall. He then orders all cadets whom he may find visiting in rooms not their own to their proper quarters, and reports all who fail to comply promptly with his orders to the sergeant of the guard, as well as all absentees; and the sergeant of the guard passes on all such reports to the officer of the day. A sentry similarly reports every irregularity that may occur on his beat, and particularly the name of any cadet who may have absented himself from the barracks for more than ten minutes. A high sense of the honorable confidence reposed in a sentry seems to be generally entertained; and there is every reason to believe that the cadet sentries at West Point perform their duties in a trustworthy and satisfactory manner.

The general duties of the battalion are assimilated as much as possible to those of a battalion in quarters. The daily detail of duties is drawn up by the cadet adjutant. The cadets for guard are detailed by the first sergeants of their respective companies at each evening parade, and the daily routine is in this respect as nearly as possible the same as that of military life.

There is no yearly vacation; and the furlough which each cadet may obtain at the end of his second year is subject to the following conditions, viz.:—

1st. If he has obtained 350 demerit in the
he is detained twelve days; if 325, 300, 275
within the same period, he is detained ten
days, three days, or two days respectively.

2d. He is required to sign a certificate, dc
no manner improperly interfered with, or m
cadets. The furlough of any cadet declining
is limited to one month, from 28th July to 28
there have been instances of cadets declining
it is probable that, as a general rule, the cad
liberal interpretation on the words of the for

Leave of absence from the Academy for o
sionally granted, but only for exceptional rea

Buildings.

The *cadet barrack* is a handsome stone b
It contains 176 rooms, of which 136 are c
by 22 feet, arranged in eight divisions, each
entrance, and having no interior communi
divisions. Not more than two cadets are lod
The two beds in each room are curtained
separated from each other by a partition.
bathing rooms in the basement, to which the

Each division of quarters is under the
assistant instructor of tactics, who visits the
three times in the course of each day, and
night. He makes a daily report in writing
the condition of the rooms under his charg
cies that may have come to his knowledge si

A division of quarters is divided into two
of two floors each, each subdivision being u
of the cadet officers, who has his quarters
responsible for the discipline of his subdivis
fulfillment of all orders that may be issued r
quarters. He visits all the rooms of his s
after reveillé, and immediately after *taps*
irregularities, and makes a daily report in w
tendent of his division, recording all delinq
that since the report of the previous day he h
all duties required of him as *inspector of sub*

The *Academy* is a building detached, co
rooms and departments, viz.:—

Chemical department, comprising laboratory, lecture-room, room for electrical experiments, and a work-room; *fencing department; gymnasium; mineralogical collection; engineering department*, comprising drawing and model rooms; *artillery model room; mathematical model room; drawing academy; trophy room; picture and statue galleries; mineralogical section rooms;* and 10 *recitation rooms* (or halls of study).

Another detached building contains the *observatory;* and *library* of 20,000 volumes, to which the cadets have access at stated times.

There are no rooms specially set apart for day rooms, reading or recreation rooms.

The *mess hall* is a detached building. The central hall where the cadets take all their meals is 96 feet by 46 feet and 20 feet high. Quarters for the purveyor with kitchen and bakery, and with quarters for the necessary servants in the basement, are attached.

The cadets are formed in the barrack square previous to each meal, and are marched to and from the mess hall. The officer in charge visits the mess hall at all meal times. The senior cadet officer present is responsible for good order.

The *Riding School* is detached and is admirably adapted to its purpose.

Expenses.

The Academy is entirely supported by the State. The average annual cost for 62 years has been $137,315; and this sum includes the cost of all buildings and structures, of repairs and maintenance. The yearly appropriations during the last eight years have varied from $170,000 to $200,000, but does not include certain sums which are paid out of the regular appropriation to the War Department.

A new cadet is admitted to the Academy on the 1st of July. From that date he is credited with Government pay at the rate of $30 a month, which allowance is calculated as sufficient to pay for the whole cost of his equipment and maintenance. As the monthly pay is, however, small compared with the first cost of uniforms and outfit, a new cadet usually deposits with the treasurer of the Academy on entrance from $60 to $80, to be credited to his account. Thenceforth all wants and necessaries are supplied to the cadet by the Government, the prices being a trifle above cost and charged against his account. At the end of his residence, a balance is struck, and the sum standing to his credit, if any, is paid over to him. It is possible by this arrangement for a very careful and steady lad to secure his education, his maintenance during four years, a position in the army, and $100 in addition, at the time of his graduation.

STAFF FOR GOVERNMENT AND INSTRUCTIO

Superintendent.—Col. Thomas H. Ruger,

Military Staff.

Adjutant.—Captain Robert H. Hall, 10th Infantry.
Quartermaster.—Captain Tully McCrea, 1st Artillery.
Treasurer.—1st Lieut. James M. Marshall, 4th Artillery.
Surgeon, U S. A.—Thomas A. McParlin, M. D.
Assistant Surgeon, U. S. A.—Van Buren Hubbard, M. D.

Academic Staff.

Commandant of Cadets and Instructor of Artillery, Cavalry
Col. Emory Upton, 1st Artillery.
Assistant Instructor of Artillery Tactics.—Captain Alexan
Assistant Instructor of Infantry Tactics.—Captain Joseph
Assistant Instructor of Artillery and Infantry Tactics—C
Assistant Instructor of Cavalry Tactics.—Captain Alfred E
Assistant Instructor of Artillery, Infantry and Cavalry
Starring, 2d Artillery.
Assistant Instructor of Infantry Tactics.—1st Lieut. John
Professor of Mathematics.—Albert E. Church, LL.D.
Assistant Professor of Mathematics.—1st Lieut. John P. St
Acting Assistant Professors of Mathematics.—1st Lieut. W
tillery; 2d Lieut. John E. Greer, Ordnance; 2d Lieut.
2d Lieut. Frank Heath, 3d Artillery; 2d Lieut. Philip M.
Professor of Drawing.—Robert W. Weir, N. A.
Assistant Professor of Drawing.—1st Lieut. Edward H. To
Acting Assistant Professor of Drawing.—2d Lieut. Charles
Professor of Chemistry, Mineralogy, and Geology.—Henry L.
Assistant Professor of Chemistry, Mineralogy, and Geolog
Ordnance.
Acting Assistant Prof. of Chemistry, Mineralogy, and G
Tillman, 4th Artillery.
Professor of the Spanish Language.—Patrice de Janon.
Assistant Professor of the Spanish Language.—1st Lieut. J
Professor of Natural and Experimental Philosophy.—Peter S.
Assistant Prof. of Natural and Experimental Philosoph
Engineers.
Acting Assistant Professors of Natural and Experimental
S. Holden, 4th Artillery; Additional 2d Lieut. Edgar W.
Professor of the French Language.—George L. Andrews.
Assistant Professor of the French Language.—1st Lieut. Ge
Acting Assistant Professor of the French Language.—2d
Artillery.
Professor of Ethics and Law.—John Forsyth, D.D.
Assistant Professor of Ethics and Law.—Captain John S.
Professor of Military and Civil Engineering.—Junius B. Whe
Assistant Professor of Military and Civil Engineering.—
Engineers.
Acting Assistant Professors of Military and Civil Engi
Ernst, Engineers; 1st Lieut John C. Mallery, Engineers.
Instructor of Ordnance and Gunnery.—Captain Thomas C. Br
Assistant Instructor of Ordnance and Gunnery.—1st Lieut.
Instructor of Practical Military Engineering, Military Signali
ing Company E, Engineers.—Captain Oswald H. Er
Assistant Instructor of Military Signaling and Telegraphy
1st Lieut. Edward H. Totten, 1st Artillery.
Assistant Instructor of Practical Military Engineering, on
neers.—2d Lieut. Frederick A. Mahan, Engineers.
Sword Master.—Antonê Lorentz.

COURSE OF INSTRUCTION.

The studies pursued, and the instruction given at the Military Academy, are comprised under the following heads, in the Official Regulations:—

I. Infantry, Artillery, and Cavalry Tactics, and Military Police and Discipline.—This course will conform to the system of Infantry Tactics and Military Police and Discipline, established for the government of the Army, and will comprise the schools of the soldier, company, and battalion, the evolutions of the line, the manual exercise and manœuvres of Light Infantry and riflemen, with the police and discipline of camp and garrison. (2.) Artillery Tactics will comprise exercise of field, siege, and garrison artillery; manœuvres of batteries; mechanical manœuvres and target practice. (3.) Cavalry tactics will comprise the schools of the trooper mounted, of the platoon, and of the squadron; and equitation.

II. The Use of the Sword, &c.—Will comprise the use of the small-sword, broadsword, and bayonet, and such military gymnastics as circumstances may permit.

III. Mathematics.—This course will comprise:

(1.) *Algebra.*—Fundamental operations; involution and evolution; reduction and conversion of fractional and radical qualities; reduction and solution of equations, including those of the third degree ratios and proportions; summation of infinite series and figurate numbers; nature, construction, and use of logarithms.

(2.) *Geometry.*—Geometry of right lines, planes, and volumes and spherical geometry; and the formation and construction of determinate geometrical equations.

(3.) *Trigonometry.*—The solution of all the cases in plane and spherical trigonometry; analytical investigation of trigonometrical formulæ; and the construction of trigonometrical tables.

(4.) *Mensuration and Surveying.*—Mensuration of planes; surfaces and volumes; principles and practice of common land surveying; different methods of plotting and calculating such surveys; trigonometrical surveying; measurement of heights and distances: leveling; and use of instruments in plotting, surveying, &c.

(5.) *Descriptive Geometry.*—The graphic illustration and solution of geometrical problems in space; and the particular application of this method to spherical projections, construction of maps, to shades and shadows, and perspective, and isometric projections.

(6.) *Analytical Geometry.*—Construction of algebraic expressions; solution of determinate problems; determination and discussion of the equations of the right line, plane and conic sections; discussion of the general equations of the second degree involving two or three variables; determination of loci, &c.

Differential and Integral Calculus, with its application to maxima and minima, the drawing of tangents, rectification of curves, radii of curvatures, quadratures, cubatures, &c.

IV. French Language.—This course will comprise:

French Grammar; reading and writing French; and translating (from text and orally) English into French and French into English.

V. Spanish Language.—This course will comprise:

Spanish Grammar; reading and writing Spanish; and translating (from text and orally) English into Spanish and Spanish into English.

VI. Drawing.—This course will comprise:

Topography, with lead-pencil, pen and ink, and colors.
Figures, with pen and ink.
Landscape, with the lead-pencil.
Landscape, with colors.

VII. Chemistry, Mineralogy, and Geology.—This course will comprise:

Chemical Physics.—Magnetism; static and voltaic electricity; electro-mag netism; magneto-electricity; thermo-electricity; animal electricity; construction and use of apparatus illustrating the principles of the foregoing subjects and their mutual relations. Heat—its nature, sources, and effects: relation between thermal energy and other forces; measurement and equilibrium of temperatures; thermal and aqueous phenomena of the atmosphere; light as a chemical agent.

Chemistry.—Its general laws and language; inorganic and organic chemistry theory of radicals, types, and substitutions; animal chemistry; animal nutrition, heat, and force; relation between the mineral, vegetable, and animal kingdoms; applications of chemistry to agriculture, fermentation, &c.

Mineralogy.—Crystallography; structure, practical determination and uses of minerals; descriptive mineralogy.

Geology.—The earth's features; classification, structure, modes of occurrence and distribution of rocks; rock veins; division of geological history into ages; the various agents of geological changes; geology of the United States.

VII. NATURAL AND EXPERIMENTAL PHILOSOPHY.—This course will comprise:

Mechanics.—1st. General classification of the physical sciences; general constitution and physical properties of bodies; measurements of the masses; densities and weights of bodies; definitions and descriptions of natural forces. 2d. *Mechanics of Solids.*—Work; laws of equilibrium and of motion; free and constrained motion of solids; motion of projectiles; planetary motions and the general principles of physical astronomy. 3d. *Mechanics of Fluids.*—Mechanical properties of fluids; equilibrium and motion of fluids; general principles of buoyancy; equilibrium and stability of floating bodies: specific gravity; and barometrical measurements. 4th. *Mechanics of Molecules.*—General principles of sound, heat, light, and electricity, to be taught principally by lecture. 5th. *Application.*—Objects and principles of machines; friction; stiffness of cordage and adhesion; discussion of the elementary machines—cord, lever, inclined plane, wheel and axle, pullies, screw, hydraulic press, and hydraulic ram.

Acoustics.—Theory of the internal structure of bodies; nature of sound; waves in general; velocity of sound in solids, liquids, and gasses, and measurement of distances by sound; qualities of sound; reflection, refraction, divergence and decay of sound; echoes, hearing and speaking trumpets, and description of the ear.

Optics.—Nature of light; laws of its deviation; laws of vision; optical instruments; chromatics; achromatism; polarization, interference, and chromatics of polarized light.

Astronomy.—Description of the solar and stellar systems; celestial and terrestrial spheres; figure and magnitude of the earth; its motions, with the appearances and vicissitudes arising therefrom; theory of astronomical reductions; eclipses, occultations, and transits; tides and twilight; use of astronomical instruments and tables; methods of making, clearing, and calculating observations for time, latitude, longitude, the earth's magnetism and true meridian.

IX. ORDNANCE AND GUNNERY.—This course will comprise:

Ordnance.—1st. The theory and preparation of gunpowder, cannon, artillery carriages, projectiles, implements, machines, small-arms, ammunition, and military fireworks. 2d. Practical instruction in making musket, rifle, pistol, cannon and howitzer cartridges; preparation of strap, grape, and canister shot, fuzes, slow and quick match, port-fire, signal rockets, carcases, fire-balls, light balls, and incendiary composition; loading shells, shrapnel shot and grenades; putting up stores for transportation; loading caissons; in determining the pressure on the bore of a gun; in determining the initial velocity of projectiles; in the manner of proving powder, and when circumstances will admit of it, the operation of casting cannon solid and hollow, casting of projectiles and the usual methods of testing gun-metals, will be witnessed.

Gunnery.—Embracing the study of the movements of projectiles; the theory of pointing fire-arms; the different kinds of fires and their effect; the art of breaching, and the composition of batteries.

X. ETHICS AND LAW.—This course will comprise:

Ethics.—1st. Common basis with law. 2d. In moral science, the pursuit of the highest good for each and all; the realization of excellence by virtue, the fulfillment of obligations to God and our country, to ourselves and others; and 3d, In its practical division, the duties, vices and passions.

Law.—1st. General principles. 2d. International law. 3d. Political organization and constitution of the United States. 4th. Rules and articles of war: and the organizations, powers, forms, and proceedings of courts-martial.

XI. PRACTICAL MILITARY ENGINEERING.—This course will comprise:

The preparation of trench and battery materials—gabions, facines, sand-bags, &c.; the manner of tracing and profiling batteries and intrenchments, by cords, pickets and laths; the defiladement of intrenchments and other works; the distribution and posting of working parties, with their implements and materials in the construction of batteries, intrenchments, &c; the construction of the various revetments for batteries and intrenchments, the laying of platforms for field, siege, and garrison artillery; the construction of palisades, fraises, abatis, rifle-pits, and trous-de-loup; the manner of placing intrenchments and other works, together with houses, walls, fences, &c., in a state of defense; the trace, defiladement, and construction of the several kinds of trenches and saps; descent and passage of a ditch, and other operations of a siege; the manner of laying out, constructing, tamping and springing mines, both for attack and defense, with the application of electricity thereto; trestle, ponton, and other bridge exercises; military reconnoissance of a route for the march of a column of troops, and of a locality for defensive works.

XII. MILITARY AND CIVIL ENGINEERING, AND THE SCIENCE OF WAR.

Military Engineering.—1st. Principles and methods of planning and constructing temporary works, comprising intrenchments, inclosed works, batteries, lines, bridge-heads, with the modes of their attack and defense. 2d. Permanent Fortifications.—Principles of planning and constructing permanent works for land and sea-coast defense, with an analysis and description of the modern systems of fortifications; the attack and defense of permanent works, including mines.

Civil Engineering.—Comprising building materials, masonry, carpentry, bridges, roads, railroads, canals, and river and harbor constructions. The theory and description of mechanism and machines. The principles of architecture. Descriptive drawing as applied to civil engineering, architecture and fortification.

Science of War.—The military organization of states and kingdoms; composition and organization of an army; strategy illustrated and explained by military history; the operations of a campaign, comprising the movements of troops and their general dispositions for attack and defense.

DISTRIBUTION OF STUDIES BY YEARS AND CLASSES.

Subjects.—First Year—Fourth Class.

MATHEMATICS.—Davies' Bourdon's Algebra. Davies' Legendre's Geometry and Trigonometry. Church's Descriptive Geometry.

FRENCH LANGUAGE.—Bolmar's Levizac's Grammar and Verb Book. Agnel's Tabular System. Berard's Leçons Françaises. * Spier's and Surrenne's Dictionary.

ARTILLERY AND INFANTRY TACTICS.—Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery.

SMALL-ARMS.—Instruction in Fencing and Bayonet Exercise.

Second Year—Third Class.

MATHEMATICS.—Church's Descriptive Geometry, with its application to Spherical Projections. Church's Shades, Shadows, and Perspective. Davies' Surveying. Church's Analytical Geometry. Church's Calculus.

FRENCH LANGUAGE.—Bolmar's Levizac's Grammar and Verb Book. Berard's Leçons Françaises. Chapsal's Leçons et Modèles de Litterature Française. Agnel's Tabular System. Rowan's Morceaux Choisis des Auteurs Modernes. * Spier's and Surrenne's Dictionary.

Spanish Language.—Josse's Grammar. Morale's Progressive Reader. Ollendorff's Oral Method applied to the Spanish, by Velazquez and Simonne. * Seoane's Neuman and Barretti's Dictionary.

Drawing.—Topography, &c. Art of Penmanship.

Infantry, Artillery, and Cavalry Tactics.—Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery and Cavalry.

Third Year—Second Class.

Natural and Experimental Philosophy.—Bartlett's Mechanics. Bartlett's Acoustics and Optics. Bartlett's Astronomy.

Chemistry.—Fowne's Chemistry. Chemical Physics, from Miller.

Drawing.—Landscape. Pencil and Colors.

Artillery, Cavalry, and Infantry Tactics.—United States Tactics for Garrison, Siege, and Field Artillery. Upton's Infantry Tactics. Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery and Cavalry.

Practical Military Engineering.—Myer's Manual of Signals. Practical and Theoretical Instruction in Military Signaling and Telegraphy.

Fourth Year—First Class.

Military and Civil Engineering, and Science of War.—Mahan's Field Fortifications. Mahan's Outlines of Permanent Fortification. Mahan's Civil Engineering. Mahan's Fortifications and Stereotomy. Mahan's Advanced Guard and Outpost, &c. Mahan's Industrial Drawing. * Moseley's Mechanics of Engineering.

Mineralogy and Geology.—Dana's Mineralogy. Hitchcock's Geology.

Ethics and Law.—French's Practical Ethics. Halleck's International Law. Kent's Commentaries (portion on Constitutional Law). French's Law and Military Law. Benét's Military Law and the Practice of Courts Martial. * Webster's Dictionary.

Artillery, Cavalry, and Infantry Tactics.—United States Tactics for Cavalry. Practical Instruction in the Schools of the Soldier, Company, and Battalion. Practical Instruction in Artillery and Cavalry.

Ordnance and Gunnery.—Benton's Ordnance and Gunnery. Practical Pyrotechny.

Practical Military Engineering.—Practical Instruction in fabricating Fascines, Sap Fagots, Gabions, Hurdles, Sap Rollers, &c.; manner of laying out and constructing Gun and Mortar Batteries, Field Fortifications, and Works of Siege; formation of Stockades, Abattis, and other military obstacles; and throwing and dismantling Pontoon Bridges.

Myer's Manual of Signals. Practical Instruction in Military Signaling and Telegraphy.

PROGRAMME OF CAMP DUTIES FROM JULY 5, TO AUGUST 30.

Reveillé, 5 a. m. Policing camp just after reveillé. Infantry company drills, for all classes, 5.30 a. m. Surgeon's call, 6.30 a. m. Breakfast call, 7 a. m. Parade call, 8 a. m Guard mounting, immediately after parade. Siege and sea-coast artillery drill for 1st class; Light Battery drill, 2d class; Foot Light Battery drill, 4th class; 9 till 10 a. m. Laboratory duty for two weeks, signaling, practical and topograpical engineering, for rest of term for 1st class, 10 till 12 a. m. Laboratory duty for 3d class for two weeks, 10 till 12 a. m. Infantry squad drill for 4th class, 10 till 11 a. m. Dinner, 1 p. m. Policing camp, 4 p. m. Infantry company's drill for all classes, 5.30 p. m. Parade, sunset. Supper, after parade. Tattoo, 9.30 p. m. Taps, 9.45 p. m.

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* Books marked * are for reference.

I. REGULATIONS

RELATIVE TO

THE ADMISSION OF CADETS INTO THE MILITARY ACADEMY.

APPLICATIONS for admission into the United States Military Academy at West Point, should be made by letter to the Secretary of War. By provision of law, each Congressional and Territorial district, and the District of Columbia, is entitled to have one cadet at the Military Academy, and no more. The district appointments are made on the nomination of the member of Congress representing the district at the date of the appointment. The law requires that the individual selected shall be an actual resident of the Congressional district of the State or Territory, or District of Columbia, from which the appointment purports to be made. Also, appointments "at large," not to exceed ten, are annually made. Application can be made, at any time, by the candidate himself, his parent, guardian, or any of his friends, and the name placed on the register. No preference will be given to applications on account of priority; nor will any application be entered in the register when the candidate is under or above the prescribed age; the *precise age* must be given; *no relaxation of the regulation in this respect will be made;* nor will any application be considered in cases where the age and other qualifications of the candidates are not stated. The fixed abode of the candidate, and *number* of the Congressional district which he considers his permanent residence, must be set forth in the application. The pay of a cadet is $30 per month, to commence from his admission into the Military Academy, and is considered ample, with proper economy, for his support.

The appointments will be made annually in the month of February or March, on the applications made within the preceding year. The claims of all the candidates on the register will be considered and acted upon. No certain information can be given as to the probable success of the candidate, before the arrival of the period for making the selections. Persons, therefore, making applications, must not expect to receive information on this point.

As a general rule, no person will be appointed who has had a brother educated at the institution.

QUALIFICATIONS.

Candidates must be over sixteen and under twenty-one years of age, at the time of entrance into the Military Academy; must be at least five feet in height, and free from any deformity, disease, or infirmity, which would render them unfit for the military service, and from any disorder of an infectious or immoral character. They must be able to read and write well, and perform with facility and accuracy the various operations of the four ground rules of arithmetic, of reduction, of simple and compound proportion, and of vulgar and decimal fractions.

It must be understood that a full compliance with the above conditions will be insisted on—that is to say—the candidate must write in a fair and legible hand, and without any material mistakes in spelling, such sentences as shall be dictated by the examiners; and he must answer promptly, and without errors,

Summary of Qualifications (in Circular of 1871).

A sound body and constitution, a fixed degree of preparation, good natural capacity, an aptitude for study, industrious habits, perseverance, an obedient and orderly disposition, and a correct moral deportment are such essential qualifications that candidates knowingly deficient in any of these respects should not, as many do, subject themselves and their friends to the chances of future mortification and disappointment, by accepting appointments to the Academy and entering upon a career which they can not successfully pursue.

Method of Testing the Qualifications of Candidates.

Candidates should be able to *read* with facility from any book, giving the proper intonation and pauses, and to *write* portions that are read aloud for that purpose, spelling the words and punctuating the sentences properly. Some historical work should preferably be chosen, and successive passages read till the reading exercises are ended. Then, from another part of the book, a suitable paragraph or paragraphs, of reasonable length, should be read aloud to the candidates, with proper intonations and pauses, as a guide to punctuation, and written down by them as read.

In Arithmetic they should be able to perform with facility examples under the four ground rules, and hence should be familiar with the tables of addition, subtraction, multiplication, and division, and be able to perform examples in reduction and in vulgar and decimal fractions, such as:

Add $\frac{2}{3}$ to $\frac{3}{4}$; subtract $\frac{2}{5}$ from $\frac{5}{6}$; multiply $\frac{3}{4}$ by $\frac{7}{8}$; divide $\frac{2}{5}$ by $\frac{3}{8}$

Add together two hundred and thirty-four thousandths, (.234,) twenty-six thousandths, (.026,) and three thousandths, (.003.)

Subtract one hundred and sixty-one ten thousandths (.0161) from twenty-five hundredths (.25.)

Multiply or divide twenty-six hundredths (.26) by sixteen thousandths (.016.)

They should also be able to change vulgar fractions into decimal fractions, and decimals into vulgar fractions, with examples like the following:

Change $\frac{15}{16}$ into a decimal fraction of the same value.

Change one hundred and two thousandths (.102) into a vulgar fraction.

In simple and compound proportion, examples of various kinds should be given, and the candidates should understand the principles of the rules followed.

In English Grammar candidates should exhibit a familiarity with the nine parts of speech and the rules in relation thereto; should be able to parse any ordinary sentence given to them, and, generally, should understand those portions of the subject usually taught in the higher academies and schools throughout the country, under Orthography, Etymology, Syntax, and Prosody.

In Descriptive Geography they should name, locate, and describe the natural grand and political divisions of the earth, and be able to delineate any one of the States or Territories of the American Union, with its principal cities, rivers, lakes, seaports, and mountains.

In History they should be able to name the periods of the discovery and settlement of the North American continent; of the rise and progress of the United States, and of the successive wars and political administrations.

The examinations in Orthography, Grammar, Geography, and History may be either oral or written.

Candidates undoubtedly deficient in any one requisite, or more than one, should resign any expectation of admission till the deficiency is overcome.

Candidates should first be examined by a medical practitioner, with reference to the physical requirements and disqualifications set forth in the circular; such as are manifestly disqualified being so informed.

The condition of body and mind considered together should be regarded, as well as general proficiency in the studies as a whole. Especially should natural ability and manifest aptitude for acquiring and applying knowledge take precedence of mere scholastic finish and readiness of answer to former problems. Other things being equal, preference should be given, in order, to those whose claims are strengthened by military, naval, or other distinguished service rendered to the country by themselves or their immediate relatives; and it is better for candidates to be nearer the minimum than the maximum age.

BOARD OF VISITORS

In the Regulations for the government of the Military Academy, approved July 1, 1816, provision for the appointment of a Board of Visitors, to consist of five competent gentlemen, who should attend at each general examination, and report thereon to the War Department through the Inspector, who appears to have been from the start the senior officer of the corps of Engineers.

In 1846 (Aug. 8), Congress authorized the appointment annually, by the President, of a Board of Visitors, whose duty it was made to attend each yearly examination, and report to the Secretary of War upon the discipline, instruction, police and fiscal affairs of the Academy. The members were to be taken from one half of the number of States, alternating yearly with the other half, each member being a *bona fide* resident of the State from whence appointed, and each Congressional district being in turn designated to furnish an appointee. Of the members each year, not less than six must be taken from among officers actually serving in the militia.

Extract from Act of Congress approved August 8, 1846, *amended by Acts of March* 16, 1868, *and February* 21, 1870.

That the President is authorized to appoint a Board of Visitors to attend the annual examination of the Military Academy, whose duty it shall be to report to the Secretary of War, for the information of Congress, at the commencement of the next succeeding session, the actual state of the discipline, instruction, police, administration, fiscal affairs, and other concerns of the institution: *Provided*, That the whole number of visitors each year shall not exceed seven: *Provided, further*, That no compensation shall be made to said members beyond the payment of their expenses for board and lodging while at the Military Academy, and an allowance, not to exceed eight cents per mile, for traveling by the shortest mail route from their respective homes to the Academy, and back to their homes. And in addition to the other members of the Board of Visitors to be appointed by the President, according to law, to attend the annual examination of cadets at the United States Military Academy, there shall be on every such board two Senators, to be designated by the Vice-President, or President *pro tempore* of the Senate; and three members of the House of Representatives, to be designated by the Speaker of the House of Representatives, such designations respectively to be made at the session of Congress next preceding the time of such examination; and the Senators and members so appointed shall make full report of their action as such visitors, with their views and recommendations in regard to the said Military Academy, within twenty days after the meeting of Congress, at the session next succeeding the time of their appointment.

EXTRACT FROM REPORT OF VISITORS FOR 1871.

Twenty-five years ago West Point was substantially separate from the outside world; for several months of the year a mail was not received oftener than once in three or four days. The presence of visitors was almost wholly unknown, and the officers and cadets formed a community by and of themselves. The relations existing between the officers and cadets was like that at present existing between the officers and soldiers at a military post. Cadets were permitted to visit at the quarters of professors and officers on Saturday afternoons, and at no other time. But so reserved were the manners of officers, even on such occasions, that the privilege, though recognized, was very rarely exercised. There was substantially no social intercourse between the officers and the cadets.

In those days, too, the rigor of discipline put all cadets, the sons of the rich and the sons of the poor, upon a common footing. The regulations not only prohibited any cadet from receiving money from his parents and friends, but no place existed, or was permitted to exist, on the limits, where cadets could expend money. Occasionally a cadet was allowed to purchase what he pleased under the head of "sundries;" not exceeding one dollar in amount, and that only on the order of an officer in charge.

But all this has changed. West Point is now or fast becoming a place of fashionable resort. Hotels have been erected in near proximity to the post, and hundreds of visitors now repair thither where one did in former years. This influx of fashionable life has caused a relaxation of the rules in regard to cadets visiting. The great distance between officers and cadets has been gradually diminished. Cadets of the first class may now visit officers every day in the week, and officers and cadets associate together with a freedom of intercourse not formerly known. Insensibly the standard of discipline has been lowered, until the Academy has less than formerly the character of the Regular Army, and more the features of a militia establishment, where officers and men are separated while on duty, but mingle in social intercourse when the hour of drill or parade has passed.

Although the regulation in regard to cadets receiving money remains unchanged, yet, at present, a new functionary, known as the "cadet confectioner," is allowed to keep open on cadet limits a place of resort which cadets are known to frequent daily to enjoy the table, and where they may treat their fellows without stint or limit. Thus one of the elements of equality which formerly existed among the cadets is destroyed, and the son of a wealthy man may fare sumptuously, while the poor boy must confine himself to such food as the mess-hall affords.

Many other causes might be mentioned as contributing to the present condition of things, and many other illustrations of the change from the custom of former years might be given. But those members of the board who have been appointed by the Vice-President and Speaker of the House of Representatives, and whose duty it is by law specially made to report to Congress upon this subject, will doubtless do so at length, and therefore this board pass the subject without as full a consideration as would otherwise be demanded. But this board, feeling the importance of a high state of discipline to the efficiency of the Academy, to accomplish the purpose for which it is maintained, earnestly recommend a return to the stricter kind of discipline which was administered years ago. An army must be governed by different methods and upon different principles from a civil society, and to an army and to every military establishment discipline is a necessity.

With a view to this end, in the opinion of this board, the superintendent and commandant of cadets should always be officers of high rank, who, by their age and military distinction, can command not only the respect but the implicit obedience of the cadets.

REPORT OF THE BOARD OF VISITORS FOR 1863.

The Board of Visitors invited by the Secretary of War to visit the Military Academy at West Point, to make "a full and free investigation of the Military and Scientific instruction of the Cadets, and of the internal police, discipline, and fiscal concerns of the institution, and communicate the results of their observations, with any suggestions for the improvement of the Academy," consisted of the following members:

Oliver S. Munsell, *Illinois*, PRESIDENT. Birdsey G. Northrop, *Mass.*, SECRETARY. Thomas M. Allen, *Missouri.* Henry Barnard, *Connecticut.* Samuel W. Bostwick, *Ohio.* Thomas Brainard, *Penn.* Cyrus Bryant, *Illinois.* A. W. Campbell, *West Virginia.* Ralph W. Emerson, *Mass.* Oran Faville, *Iowa.* John H. Goodenow, *Maine.* P. D. Gurley, *District of Columbia.* Oliver P. Hubbard, *New Hampshire.* Edward Maynard, *District of Columbia.* Henry S. Randall, *New York.* William H. Russell, *Conn.* William A. Rust, *Maine.* Albert Smith, *New Hampshire.*

The Visitors introduce an account of their inspection with the following remarks:

> Some of our number came with objections and prejudices against the Academy. But all doubts as to the value and importance of the institution were banished by the evidence presented in the course of our personal inquiries into its present condition and actual results. The Mexican war clearly evinced the value of military science. Still more has the present war demonstrated the necessity of maintaining, and even enlarging our Military Academy.
>
> This Academy belongs to the whole nation. So far as its purpose and numbers permit, it is the Peoples' College. It is maintained for the special benefit of no particular section, sect, party, or class. We could discover no evidence of aristocracy, exclusiveness, or caste. The Cadets represent all sects and parties, and almost all nationalities, now naturalized among us. The poor are not denied its privileges, for the expenses of all are paid alike. If particular dogmas have at any time prevailed here, the fact is an accidental, rather than an essential one, and should be referred to the ruling influences at the seat of government, and not to any inherent element in the local organization at West Point.

Their Report has been communicated to the Secretary, by whom the same will be transmitted to Congress—to receive such attention as the Secretary and Congress may see fit to bestow on its various suggestions. By permission of the Secretary, we transfer to our pages, that portion of the Report in which the subject of the Admission of Cadets—their number, age, attainments, and mode of appointment, is discussed with considerable fullness.

ADMISSION OF CADETS.

In concluding the report of their inspection of this, the only national military school, to which the country naturally looks for the organization and command of her armies, and the construction of her works of defense, the Visitors would respectfully urge on the consideration of the Department, an immediate and thorough revision of the law and regulations relating to the admission of Cadets—the number, the qualifications required, and the mode of ascertaining these qualifications, and of making the appointments. No matter how appropriate may be the location, how complete the buildings and equipment, and how skillful and faithful the teachers, unless there is a constant and sufficient supply of pupils of the right age, character, bodily and mental vigor and aptitude, as well as aspirations for a military career, the public will be disappointed in the practical workings of the institution.

1. The number of pupils in the Military Academy is determined by the law, which limits the Cadet Corps of the United States Army to one cadet for each Congressional District in the several States, one for each Territory, one for the District of Columbia, and to forty more, whom the President may appoint, ten each year, from the country at large, without reference to their residence. Under this law, if each Congressional District and Territory were represented, the whole number of cadets would be two hundred and eighty, but owing to vacancies by withdrawal or non-appointment in Congressional Districts in the States involved in the rebellion, the number at this time is reduced to less than two hundred—and the graduating class of 1863, to twenty-five—a number altogether inadequate for the regular army in time of peace, and much below the present and future exigences of the service, while the expense of the Academy remains the same. We are assured by the Superintendent that without any additional expense for building and material equipment, and with a small advance in the pay of pupils and assistant teachers, the Cadet Corps could be increased to four hundred. The Visitors are unanimously of the opinion that the corps should be at once increased to this number, and should be maintained at this maximum at all times, by authorizing the President to appoint to any vacancy which may remain unfilled for three months by reason of nullification, secession, rebellion, or any other cause. If the appointments to fill and maintain the Corps at this maximum, can be selected out of the many American youths, ambitious to serve their country in the army, on the plan of an open competi

tive examination in the several States, the Visitors believe that ninety out of every one hundred thus appointed will go through the whole course with honor, and the average ability, scholarship, and good conduct of the whole corps, will equal that now reached by the first ten of each class.

2. By the original law providing for the appointment of cadets to the corps of Artillerists and Engineers, and by the act of 1812, by which the Military Academy was made to consist of the Corps of Engineers, the candidates for cadets were to be "not under the age of fourteen, nor above the age of twenty-one years." By regulations of the Department the minimum age is fixed at sixteen years, and the Visitors believe that the interests of the Academy and the military service, will be promoted by making the legal age for admission between eighteen and twenty-one years. The four years preceding and including eighteen are peculiarly the formative period of the body, mind, and character, and should be devoted to the acquisition of right habits of study and general culture, as the proper foundation for all special and professional training, which should not be commenced until the constitution is consolidated, the taste for a pursuit is distinctly pronounced, and the moral character is naturally developed under the influences and supervision of home. The experience of Europe, and particularly of France and England, has led to the abandonment of juvenile military schools, as nurseries for officers; and the very common practice of nominating candidates who exceed the legal age, expresses the convictions of our own people that military studies now require more maturity of mind than was deemed necessary in the early history of the Academy. The present want of uniformity as to age and mental discipline explains in part, the wide disparity of attainments between members of the same class. With few brilliant exceptions, confined to cadets of rare aptitude and vigor of mind, the most solid practical education is obtained by those who come to West Point when at least eighteen years of age, with at least a good preparation in English studies, and a taste for mathematical and military pursuits.

3. The school attainments required by law of candidates for admission to the Military Academy, are as rudimentary and limited as our language can express—far below, we are assured, the requisitions of any similar school in the world. Prior to 1812, when the Academy was little more than a school of mathematics, taught by two professors, in the line of geometrical and algebraical demonstrations, and the practical exercises were confined to surveying, and the simplest forms of military construction, the candidates were not

subjected to any examination. The act of 1812, provides that "each candidate previously to his appointment, shall be well versed in reading, writing, and arithmetic," and by regulations of the department, the knowledge of arithmetic is restricted to only a portion of that science. There were special reasons at the start for thus limiting the amount of knowledge, when the minimum age of admission was fixed at fourteen years, and the Academy was properly a juvenile military school, like all cadet schools in Europe at that time. At that date, science entered far less than now into the art of war, as applied to the means and modes of attack as well as of defense. Besides, the opportunities of even elementary instruction were then far less widely or equally distributed through all the States than now, when the general government has set apart over sixty million acres of the best land in aid of primary schools in all the new States, and nearly every State legislature has subjected the entire property of their several communities to taxation for the support of public instruction. Now that the requirement as to age has been advanced from the fourteenth to the sixteenth year, and by the voluntary action of parties having the nomination, or seeking the appointment, to the eighteenth year, we see no reason why the school attainments corresponding to, and compatible with that age, should not be also required. The least that should be demanded of any candidate is that amount of general culture and attainments, which constitutes a good English education, and which it is now the aim of the public schools, and their boast, to give without partiality, to all, poor and rich alike, if the advantages they proffer are properly improved. And we see no injustice in fixing the standard of general attainments and culture as high as that now reached by cadets in good standing at the close of their first year in this Academy, including even an elementary knowledge of one modern language. If the French, or Spanish, or German language is to be mastered by American officers for the sake of the military science and literature which it embodies, or its uses in conversation, or official duty, called for by the exigences of our foreign relations, both in peace and war, its acquisition should be begun as early in life as possible, while the organs of speech are flexible, and the grammatical and etymological difficulties of a new language are more readily surmounted. Judging from the results of the examinations we have witnessed here, and what we know of the attainments made by students in colleges elsewhere, very few persons, who begin the study of modern languages, late in their school life, in the pressure of other studies, ever attain the mastery of even one, so as to be able to use it as an instrument of written or spoken communication, or make its treasures of science and literature a familiar possession.

Whatever may be thought of the disciplinary and practical value of earlier and longer attention to one or more modern languages, to those, whose minds will otherwise be almost exclusively subjected to the peculiar training of the mathematics; there can be no doubt that young men who have reached the age of eighteen, and desire to profit by the special studies of a purely military school, should exhibit in their language, habits, and attainments that intellectual, moral, and esthetical culture, which the public or private schools of any State can, and should give to any youth of average ability of that age.

4. Low as the requirements for admission now are, from a defective and vicious mode, as we believe, of selecting candidates, and making appointments to the Cadet Corps, the number of candidates nominated and provisionally appointed, who present themselves at West Point and shrink from any examination, or who fail to pass even the entrance examination which is confined to reading a few passages of familiar English prose or verse, and writing a few sentences from dictation, and performing on the blackboard a few operations of the most elementary character in arithmetic,—or being admitted, are not able to gain or keep a respectable standing for one year, although the studies of the first year belong to a general, and not a military education,—or by a "special providence," manage just to escape dismission from incompetency, and graduate,—is disgracefully large. The country abounds in youth, competent to master and profit by the course of instruction here provided, and ambitious of enjoying these privileges of education, and opportunities of distinction; and a selection by lot from the juvenile population of any state, could not result in so few prizes, and such a dreary waste of blanks as have been realized from the appointments made, in the necessary absence of all personal knowledge of the candidates by the appointing power, on the recommendation, or nomination of one or more persons in each Congressional District, in no way responsible for the incompetency of the individuals named.

From official tables prepared from the records of the Academy,* it appears that the proportion of all who graduate, to all appointed in successive periods of ten years, is as follows:

For Ten Years,	from	1802 to 1811,	.....	0.606
"	"	" 1812 to 1821,	.....	0.289
"	"	" 1822 to 1831,	.....	0.377
"	"	" 1832 to 1841,	.....	0.472
"	"	" 1842 to 1851,	.....	0.510
"	"	" 1852 to 1861,	.....	0.523

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* *See Boynton's "History of Military Academy at West Point,"* p. 253.

From official returns furnished by the Superintendent, a portion of which are hereto appended, (B. C.) it appears that out of 4626 who have been admitted to the Corps of Cadets, (including two hundred now members,) only 2020 were able to graduate, and of those who failed, (2398, excluding those who remain,) more than three-fifths broke down in the first year in studies which in almost every military and scientific school in Europe are required for admission. Out of the whole number regularly nominated, recommended, and provisionally appointed from 1841 to 1863, more than twenty per cent. failed to pass the examination, as to health and constitution, or the slight examination in reading, writing, and ciphering. And this proportion would be increased by the number who withdrew in advance from the consciousness of their unfitness for a position to which ambitious and influential friends had promoted them. Out of the whole number admitted from 1851 to 1862, more than one-third failed during their first year. The proportion of graduates to the whole number admitted is 46 per cent. and of those who failed to graduate, 54 per cent.

The Visitors are unanimously of opinion that in a matter of such vital importance as the right organization and command of the armies of the United States, on which the honor and safety of the whole country depend, the original appointment to the Cadet Corps which is the *first step* in promotion to such command, as well as to all the special duties which attach to the engineer service, should not be made in any case except on the principle of finding the best youth for the place— having the health, character, vigor of body, maturity and aptitude of mind, and preparatory knowledge, to profit by the opportunities of the special military training provided by the government for this corps, and a decided taste and expressed desire for a military career. And to this end, the law and regulations should provide for the rigorous exclusion in advance of all who can not present testimonials from the teachers under whose instruction they have been for the two years next previous, that in their opinion they possess the qualifications above specified, and who do not make a written declaration of their desire to enter the Corps for the purpose of qualifying themselves to labor in the military service of the government, to which they will bear true allegiance against all enemies foreign and domestic, and over all state and local authority, government and constitution whatever. To select the best out of any number who may present their testimonials and written declarations, public examination should be held of all applicants at such times and places as the law should prescribe, by such persons and under such regulations as the Department shall be authorized to appoint; and the results of such examination of each person examined, and in each subject specified by law, should be returned to the Department, in which return the applicants should be arranged in the order of merit. From this merit roll, revised from year to year, all appointments to the Cadet Corps should be made, and in the order of merit as assigned by the examiners.

This principle of appointment and promotion by merit which we advocate, is in full and successful operation in the classification and advancement of cadets in the Academy itself, and the country will be satisfied if the same principle can be as fairly and rigorously enforced on all who aspire to enter, as well as on all promotions in the service after leaving the institution. The principle itself, of selection by merit, either in the mode of public examination, or of careful and searching inquiry by competent and impartial educators, designated for this purpose by the parties to whom custom and not law had assigned the grave responsibility of nominating candidates, has been voluntarily applied in several Congressional Districts. Not a cadet known to have been thus selected and appointed, has ever broken down from want of vigor of body or mind, or failed to reach and maintain an honorable position on the merit roll of the Academy; and to this careful selection by those who felt the responsibility of the privilege accorded to them, is the country indebted for its most eminent and useful officers.

To the objection that selection by public competitive examination, will involve expense, we reply, that any expense which will do away with the prejudices against the Academy, which the present system of patronage has done so much directly and indirectly to evoke and foster, and which will, at the same time, exclude incompetent, and secure the services of vigorous, talented, well trained officers, for every arm of the service, will be well incurred. But, in our opinion, there will be no more expense in selecting and educating a given number of cadets on this plan, than on the present. The two thousand cadets who were appointed by patronage and failed to graduate, cost the government, directly and indirectly each year, a much larger sum than it would have taken to have excluded them in advance from the institution by competitive examination, and filling their places by better men; and their exclusion by substituting better material, would have been an incalculable gain to the Academy, facilitating its discipline, increasing the value of its instruction, and giving to the army a larger number of competent officers.

The objection, that the mode of making all appointments by open competitive examination, will deprive the President, and members of Congress of the opportunity of appointing the sons of meritorious officers, or poor, and it may be, orphan boys of genius—is more plausible than real. That such appointments have been made, to the manifest advantage of the country, is certain. But we know not a single instance of such marked success, on the part of a cadet thus appointed, as to attract investigation, where the same youth would not have secured the appointment in open competition. But if he had failed, and the place had been filled by one better qualified, the country would have been no loser, and he would have suffered no injustice or neglect. We fear, from an abuse of this amiable motive of rewarding meritorious parents, and assisting the poor, that in some instances, weak, ignorant, and incompetent persons are appointed, as though this Academy were a public charity school, or home for orphans; and not a special school for military instruction and training, for which the great object, in any mode of appointment, is to select those who will profit most by its advantages, and do the country the greatest service after being thus educated at its expense.

To the objections that, in these examinations, "the most forward boys will have the best chance, and such boys seldom make the best men," and that no amount of book knowledge can give assurance of the great military genius, "which must be born and not made," we reply, that these objections apply just as forcibly to any plan of nomination, and to every system of instruction. But we believe that those examinations can be and will be so conducted as to distinguish what is precocious from what is the healthy development of the faculties, what is solid from what is showy in attainments, what is vigor, grasp and aptitude of mind from what is mere memory and quickness, in competing candidates. All of these candidates must bring the testimonials of their former teachers, as to their character, ability and attainments, must have reached the age of eighteen years, and will be called upon to exhibit orally as well as in writing their knowledge and opinions on subjects which require judgment, reflection, presence of mind and decision. If a young man of eighteen and upward shows that he has done well what he had undertaken to do thus far in life, that he has preserved a sound constitution in vigorous health, has mastered the studies appropriate to his age, is honest, diligent, thoughtful, teachable, courageous, courteous, and ambitious of excellence generally, then the country has every assurance which can be given that on this basis of character, talents, attainments, and application, a solid fabric of military education can be reared, and that in the hour of trial he will show not only courage to dare, but competence to devise, influence and command. In the responsibilities of such an hour will be found the fruitage of all his previous promise and preparation.

To the objection—"that a competitive examination must always result in the success of the best instructed, wholly irrespective of the capacity of the competing candidates; and the plan will thus secure for the country the services of dull mediocrity well instructed, and exclude genius without opportunities of development,"—we reply, that this does occur now under the present system, but need not, and never has been the result of competitive examination properly conducted. The examination which we propose to have inaugurated, is not to search simply or mainly for the results of memory or diligence, but for "vigor and aptitude of mind" in reference to the special purposes of this Academy. The examination will be poorly conducted, and will operate here widely differently than elsewhere, if it does not only exclude in advance palpable incompetency, and ascertain beyond doubt the possession by all the successful candidates, of that knowledge which is the basis of a special military training, but also seek, and give credit in the result, for the quick eye, the firm set mouth, the vigor and elasticity of body, the rapid decision, the contempt of danger, the competency to influence and command—and all the other marks of the incipient soldier and officer, as well as the mathematical tastes and qualities of mind which indicate the successful engineer. Composed as every Examination Commission might be, of at least one experienced officer of the United States Army, of one member (past or present,) of the Academic Board, of one officer of the State Militia, as well as one or more experts in educational matters, the military qualities of body, character and mind, will be sought for as well as the mere results of memory, diligence and good opportunities of instruction, in the competing candidates.

To the objection, that candidates will make special preparation, and in the phraseology of the class-room, "cram for the occasion," we reply,—to such preparation and cramming as cover the whole ground of a good English education, we can see no possible objection; the more of it, the better. If the preparation is only crude and on the surface, we are sure that the ploughshare of interrogation requiring precise answers, oral and written, will very soon expose its superficial and undigested character.

To the sifting out and selection by open competition, might be added a period of probation for the successful candidates—making their first year's connection with the academy a further test of capacity, preparation, and aptitude for a military career. No pains and no expense should be spared to exclude from the academy and the service, incompetent, indifferent, and unteachable cadets and officers; such men are "cumberers of the ground," and no influence and inertia should be potent enough to resist the inevitable working of the principle of open competition, applied at frequent intervals, and at every stage of promotion, in getting rid of such cadets and officers.

The fact that such a public examination is to be held from year to to year, and that the educational privileges of this Academy, and immediate and prospective promotion in the army are the prizes which await success, will, in five years call forth more latent genius in the obscure corners and poor families of a State, than has ever been sought out by the lantern of patronage, (which is now seldom carried beyond the family, or neighborhood, or party of the person having the nomination,) since the foundation of the Academy. With the network of public and elementary schools, woven by state legislation over all the land—with public schools of a higher grade, and special schools of science and the arts already established, at short intervals, or which will be called into existence by the demand for a higher and different preparation from that now given, it may be safely said, that no genius, likely to attract the attention of a member of Congress, will exist, which will not be developed under the same influences by which the "dull mediocrity" of the rest of the community will be educated. Once set in the path of instruction and development, real genius will assert its own claims to attention, and will, on a first or second trial, before any board of examiners, make its vigor, courage, and persistence felt. The result will be the same in this institution, as in every really good Public High School and Free Academy—all classes as to wealth, occupation, religious and political affinities will be represented,—provided the regulations are judicious, and the examination practical and impartial.

This is the experience of the competitive principle in France ever since it was inaugurated by Carnot in the Polytechnic School at Paris, and Napoleon extended its application to every public special school, and to promotion in every department of administration, civil as well as military. And where is there more general administrative ability, central and local? Where are abler or better trained officers, military and civil, to be found? Where does "well instructed mediocrity," no matter how well backed up by wealth, find less favor, or genius for organization and command, no matter how poor or unfriended, find such speedy and sure recognition?

The experience of England in the trial of the two principles of patronage and competitive examination for admission, not only to the military and naval schools, but to the East India and the Civil service generally, is instructive, and especially on the points which we are now considering. Prior to the Crimean war, (which exposed the utter incompetency of a large number of officers, who had obtained their military education and promotion by patronage and purchase,)—admission to the Royal Military Academy at Woolwich, was by nomination, and the age fixed by law, was fourteen years.

The Secretary of War was satisfied by personal inquiry in 1855, that nothing could do so much to narrow and cramp the full development of a boy's mind, as his long confinement from so early an age among lads having the same limited attainments, special studies, and destination;—that a majority of those admitted on nomination and through influential friends, had only the minimum qualifications specified by law;—that to most cadets the severer studies were irksome and imperfectly mastered, on account of immaturity of mind and imperfect preparation;—that the certainty of promotion by influence and purchase, after obtaining the diploma of the Academy, and not unfrequently without it, took away all stimulus for continued study;—that resignations were common, when the profession of arms ceased to be a pastime, or could be exchanged for something that paid better—and the service was incumbered by officers without large and trained capacity for command, although not deficient in courage and dash. Under these circumstances the Secretary of War, advanced the minimum age of candidates from fourteen to eighteen years, removed all the general studies of the Academy into the preparatory course, and opened the doors of admission to those only, who could prove their title to enter by personal merit, in a free competitive examination. The same principle was applied to appointments and promotion in the new regiments called for by the exigences of the great war in which England found herself engaged.

Subjects, time, and places of examination, were officially made known throughout the kingdom, and commissions to conduct the examinations were appointed, composed of men of good common sense, military officers, and eminent practical teachers and educators. The results as stated in a debate in Parliament, five years later, on extending this principle to all public schools, and to all appointments and promotions in every department of the public service, were as follows:—In the competitive examinations for admission to the Royal Military Academy, candidates from all classes

of society appeared—sons of merchants,
mechanics, and noblemen, and among th
tors, every class was represented. Among
son of a mechanic in the arsenal at Wool
an earl, who was at the time a Cabinet Mini
National Schools, and the students of Eton,
Schools. The most successful candidates wer
eighteen and nineteen, as is found to be the c
admission to the Polytechnic School of Fra
cessful candidates for the latter, between 1854 a
eighteen years. But the most important resul
aminations for Woolwich, was the superior mer
health, and eagerness for study exhibited b
the small number who have failed on account
petency. On this point, Mr. Edward Chadw
the National Social Science Association, at
says:—

"Out of an average three hundred patrona
the Royal Military Academy at Woolwich, for
the artillery, during the five years precedin
principle of open competition for admission
were fifty, who were after long and indulgen
regard to influential parents and patrons, di
capacity for the service of those scientific c
subsequent years, which have been years of
principle, there has not been one dismissed
over, the general standard of capacity has bee
nent professor of this university who has
the patronage as under the competitive sys
declares that the quality of mind of the ave
been improved by the competition, so much
that the present average quality of mind of the
the sorts of attainment are different, has been br
of the first classmen of this (Cambridge) univer
great gain. Another result, the opposite to
dently predicted, by the opponents to the p
the average physical power or bodily strengt
minished, is advanced beyond the average of

The opening of the Royal Military Schoo
petition, on the basis of a more advanced ag
general education, has not only drawn in pr
ability and attainments, but has enabled the

the course of instruction. In this, the only safe way, they solved the problem which has tortured the ingenuity of the friends of our Academy—of crowding new studies acknowledged to be desirable if not indispensable, into a course already too crowded for cadets so unequally, and, many of them, so imperfectly prepared for the course as it is.

Another result of immense importance to the educational interests of Great Britain has followed the introduction of these open competitive examinations for appointments to the Military and Naval Schools, to the East India service, as well as to fill vacancies in the principal clerkships in the War, Admiralty, Ordnance and Home Departments of the government:—a stimulus of the most healthy and powerful kind, worth more than millions of pecuniary endowment, has been given to all the great schools of the country, including the universities of England, Scotland and Ireland. As soon as it was known that candidates, graduates of Trinity College, Dublin, had succeeded over competitors from Oxford and Edinburgh in obtaining valuable appointments in the East India service—the professors in the latter universities began to look to their laurels. As soon as it was known to the master of any important school, that some of his leading pupils might compete in these examinations, and that his own reputation as a teacher depended in a measure on the success or failure of these pupils, he had a new motive to impart the most vigorous and thorough training to his whole school.

The success of candidates who had never seen the inside of a government Military School, in open competition for appointments to the Artillery and Engineer Corps, in the new regiments raised in 1855, over those who hold the diplomas of the Royal Military Academy, was one of the reasons which led to a thorough revision of the whole system of military education.

These results, imperfectly presented here, will, the Visitors believe, be realized from the changes, which they now suggest, in the requirements as to age, attainments, capacity and aptitude, and especially in the mode of ascertaining these qualifications, of candidates for appointments to the Cadet Corps of the United States Army.

To the present low requirements, and mode of selecting cadets, do they attribute the hostility which they know exists, to some extent, against this Academy, in different parts of the country. The charges of personal, and political favoritism in making nominations, and the absence of reasonable search, among all the youth of a district, for the best qualified in natural endowments and acquired knowledge irrespective of the poverty, or wealth, or occupation, or family, or party relations of the parents or guardians, we are forced to believe, in too many instances, to be well founded. To these hasty and injudicious nominations, do we attribute the bitter disappointments of so many individuals and families caused by the numerous failures to pass the almost formal entrance examinations in reading, spelling, penmanship, and elementary operations of arithmetic, or if admitted, to maintain a respectable standing in conduct and studies during their first year's connection with the institution. To this inequality of preparation and maturity of mind on entrance, do we attribute the astonishing disparity of capacity and attainments in the members of the same class, and the very large proportion of all who are admitted, who fail to graduate in very high standing as men of science or military promise.

To this want of preparatory knowledge, maturity of mind, and taste for mathematical and military studies, do we attribute most of the difficulties of internal administration, and class-room instruction. So long as the cadet is a boy, or if full grown in body, a youth with only boyish tastes, and without scholarly and soldierly aspirations,—so long as not a few are in the Academy, not because they sought its privileges from an inward and irrepressible impulse to a military career, but for the eclat of a military position to be resigned when such position involves sacrifices; *so long* will the admission of each new class, and especially, the period of encampment be signalized not only by boyish pranks, but by personal outrages on unoffending members of the same corps, which we had supposed to belong to the dark ages of collegiate institutions, when boyish inmates were congregated in large numbers away from the restraints of family discipline;—so long will the time, skill, and patience of able professors, which should be devoted to the elucidation of difficult scientific principles and their applications to military art, be engrossed in supplying the defects of an elementary education, which should have been obtained by the cadet as well, or better, at home; so long will the severe mathematical studies, and their special applications, difficult enough to task a well disciplined mind even with the preparation provided in a thorough knowledge of arithmetic, algebra, and geometry,—be irksome in the extreme, and be never mastered to any useful purpose to the army of the United States, by more than one half of the graduates of the Academy;—so long will the country be disappointed in the subsequent career of many graduates, for whose military instruction and training all these appropriate and costly preparations have been made.

In view of these and other considerations the Board of Visitors unanimously recommend that the law and regulations relating to the military academy be so modified as to provide as follows:

I. The Cadet Corps of the army of the United States shall consist of four hundred members, to which each state and territory shall be entitled to a number equal to its representation in the Congress of the United States, and the remainder shall be designated by the President from the country at large, including the District of Columbia; and he shall also fill, in the same way, any vacancy which for any cause may remain unfilled, for three months after the annual examination in each year.

II. No person shall be appointed to the cadet corps until he has been found qualified in the particulars designated by law, after a public examination conducted in such places, at such times, and in such manner as Congress shall prescribe; from which examination no person resident of that portion of the country for which the same is held, shall be excluded, who shall present credentials from the teacher or teachers whom he had last attended, that he is over seventeen, and under twenty-one years of age, of unblemished moral character, and personal habits, of good physical strength and constitution, and has given evidence of aptitude and vigor of mind for the studies and duties of a military career. The examiners shall make return under oath to the Secretary of War, of the persons so presenting themselves, examined, and found qualified, arranged in the order of merit, specifying the residence and school or schools which they have attended in the two years previous, and the degree of merit exhibited in each subject of the examination. And all appointments to fill vacancies for any state or territory, or for the country at large, shall be made from these returns, and in the order of merit as assigned by the examiners, until the same shall be revised by new regulations of the Department.

III. No person shall be returned to the Secretary of War as a suitable candidate for admission to the Cadet Corps, unless he

1. Shall be *over* seventeen, and under twenty-one years of age.

2. Shall possess an unblemished moral character and correct personal habits.

3. Shall be in good health, and in no way incapacitated by want of vigor and elasticity of physical constitution for military service.

4. Shall possess vigor and aptitude of mind for the studies of the Military Academy, and shall give evidence, oral and written, of a good English education, which, in view of the wide spread facilities of instruction in public and private schools, might very properly embrace

knowledge irrespective of the poverty, or wealth, or occupation, or family, or party relations of the parents or guardians, we are forced to believe, in too many instances, to be well founded. To these hasty and injudicious nominations, do we attribute the bitter disappointments of so many individuals and families caused by the numerous failures to pass the almost formal entrance examinations in reading, spelling, penmanship, and elementary operations of arithmetic, or if admitted, to maintain a respectable standing in conduct and studies during their first year's connection with the institution. To this inequality of preparation and maturity of mind on entrance, do we attribute the astonishing disparity of capacity and attainments in the members of the same class, and the very large proportion of all who are admitted, who fail to graduate in very high standing as men of science or military promise.

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4. Shall possess vigor and aptitude of mind for the studies of the Military Academy, and shall give evidence, oral and written, of a good English education, which, in view of the wide spread facilities of instruction in public and private schools, might very properly embrace

(*a.*) The correct use of the English language, in speaking, reading, and writing the same.

(*b.*) Penmanship, book-keeping, and elementary drawing.

(*c.*) The ability to perform with facility and accuracy the various operations of arithmetic.

(*d.*) The elementary principles of algebra and geometry.

(*e.*) A thorough knowledge of American geography and history, and the leading features of the Constitution of the United States, and of the State of his residence.

(*f.*) Or so much of the subjects above specified as shall be deemed indispensable to the immediate and profitable attention of the Cadets on their admission to the special studies and occupations of a military school.

5. Shall make a written declaration of his desire to obtain admission to the Cadet Corps for the purpose of qualifying himself for the military service of the United States, which service he assumes from the date of his appointment as cadet, to continue in the same for a period of at least sixteen years—bearing true faith and allegiance to the Constitution and government of the United States, against all enemies, foreign and domestic, and paramount to all obligations to any State government, authority, or constitution.

APPENDIX.

The Appendix to the Report of the Visitors of the Military Academy for 1863, contains the following tables and documents referred to in the Report.

TABLE A.—Showing the condition in life of the parents of the Cadets of the United States Military Academy from 1842 to 1863 inclusive.

TABLE B.—Showing the number of Cadets actually admitted into the United States Military Academy from each State and Territory from its origin March 16th, 1802, to October 19th, 1863.

TABLE C.—Showing the number of Cadets who have graduated at the Military Academy, from its origin to 1863, with the State and Territories where appointed.

TABLE D.—Showing the whole number of Cadets admitted and the whole number graduated from each State and Territory from 1802 to October 1863, together with the percentage of those who graduated, and of who failed, out of the whole number admitted from each State, and the number of Cadets to which each State and Territory is now entitled, according to the apportionment of members of Congress, under the Census of 1860.

STATEMENT EXHIBITING THE CONDITION IN LIFE OF THE PARENTS OF THE CADETS OF THE U. S. MILITARY ACADEMY AT WEST POINT, NEW YORK, FOR THE LAST TWENTY-TWO YEARS, FROM 1842 TO 1863, INCLUSIVE.

	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Fathers are or were farmers or planters	59	61	61	68	72	67	69	75	70	68	67	58	66	62	60	52	48	57	65	29	33	38
Fathers are or were mechanics	14	12	15	22	22	25	22	21	16	14	14	13	12	17	26	22	15	30	12	13	8	12
Fathers are or were judges or lawyers	27	25	30	35	33	30	29	23	34	33	34	35	36	26	25	29	32	32	36	23	35	39
Fathers are or were merchants	18	15	23	37	29	29	31	38	36	38	35	35	39	40	30	26	41	28	28	23	24	29
Fathers are or were boarding-house or hotel keepers	5	2	4	3	7	6	4	2	2	2	3	3	5	2	2	1	....	....	8	4	4	5
Fathers are or were physicians	12	15	15	13	21	19	21	21	18	14	14	13	9	8	9	17	16	10	18	10	13	18
Fathers are or were in the army, navy, or marine corps	14	16	16	13	11	13	17	17	18	22	24	27	28	22	20	20	26	29	33	23	25	33
Fathers are or were clergymen	4	6	6	6	5	3	3	4	4	4	3	5	4	6	5	4	5	6	7	7	8	11
Fathers are or were in the civil employment of the General or State government	5	15	16	9	5	2	3	7	7	8	10	11	14	13	13	7	31	29	18	8	11	14
Miscellaneous: as, bank officers, editors, professors, masters of vessels, &c.	15	11	15	23	35	36	41	24	32	39	30	26	14	25	13	13	12	6	37	44	39	42
Occupation not stated, or no occupation	48	34	23	17	1	2	2	8	7	11	13	7	10	19	15	20	25	39	22	18	18	19
Total	221	212	224	236	241	232	242	240	244	239	247	232	237	239	223	221	251	266	279	202	218	260
Of these numbers, there are without fathers living	26	57	44	48	42	41	34	48	40	45	36	35	29	33	33	24	46	33	42	25	25	36
Without fathers or mothers living	22	16	18	15	21	20	18	16	26	17	19	17	15	9	6	7	7	8	10	11	9	7
Total orphans	48	73	62	63	63	61	52	64	66	62	55	52	44	42	39	31	53	41	52	36	34	42
Of these numbers the parents are stated to be in moderate circumstances	....	156	150	164	192	182	193	203	215	207	218	205	206	215	196	195	216	218	239	184	199	232
Of these numbers the parents are stated to be in reduced circumstances	182	26	26	36	35	38	40	29	25	10	9	3	8	7	8	8	8	7	6	2	5	5
Of these numbers the parents are stated to be in indigent circumstances	....	6	8	8	8	8	4	4	2	8	....	1	1	1	1	1	1	....	....	....	1	5
Of these numbers the parents are stated to be in independent circumstances	....	6	10	12	6	4	5	4	2	14	20	22	22	16	18	17	26	41	34	16	12	17
Of these numbers the parents are stated to be in unknown circumstances	39	18	19	16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1
Total	221	212	224	236	241	232	242	240	244	239	247	232	237	239	223	221	251	266	279	202	218	260

NOTE.—Of the 97 Cadets admitted, to October 19th, 1863, as given in the table on page 821, 46 were appointed from the U. S. Volunteers engaged in the War, who held the following rank: 1 *Captain*, 5 *First Lieutenants*, 3 *Second Lieutenants*, 10 *Non-commissioned Officers*, 20 *Privates*, 1 *Musician*, and 6 *Clerks*, from military departments.

STATEMENT SHOWING THE NUMBER OF CADETS ACTUALLY ADMITTED INTO THE UNITED STATES MILITARY ACADEMY FROM ITS ORIGIN, MARCH 16TH, 1802, TO OCTOBER 19TH, 1863.

Year of Admission.	Maine.	New Hampshire.	Vermont.	Massachusetts.	Rhode Island.	Connecticut.	New York.	New Jersey.	Pennsylvania.	Delaware.	Maryland.	Virginia.	West Virginia.	North Carolina.	South Carolina.	Georgia.	Alabama.	Mississippi.	Louisiana.	Ohio.	Kentucky.	Tennessee.	Indiana.	Illinois.	Missouri.	Arkansas.	Michigan.	Florida.	Texas.	Iowa.	Wisconsin.	California.	Minnesota.	Oregon.	New Mexico.	Utah.	Washington.	Nebraska.	Kansas.	Dakota.	Colorado.	Nevada.	Dist. of Columbia.	At Large.	Unknown.	Total.
1802				5		1	1				1	1													1																					10
1803			3				1	1						1											1																				2	9
1804			1				1		1																5																				1	9
1805			3				2		2																1																				1	9
1806			5	1						1	1																																1			9
1807		2	5	2		2	2																																						4	17
1808	1	1	8	2		4	10		2		1	2																																	11	42
1809	1			2			1	2																																					4	10
1810							1								1																															2
1811																																														0
1812	1	1	1	1			3																1																				2			10
1813		1	3	11		1	30		5		5	6		4	2	2				2	1		2																				12		1	88
1814			4	14	1		48	4	9	2	21	22		3		1				4	5		1				1																6			146
1815			1	1		1	14	1	4	4	6	5		3	4	1				1	1	1		1																			12			61
1816		2		1		2	1	1	1	1	1	9		2	4	2				2		2																					1	2		34
1817		3	3	6		2	5	1	8	1	3	4			3	1	1		1	2	3	5	1																				2			55
1818		4	4	11	1	6	22	3	13		6	17		5	5	1			1	3	5	3									1												5			116
1819	4	1	5	4	1	5	11	6	9	3	3	10		4	5	1		1		1	5		1		1		2																3			86
1820	3	3	1	6	1	1	9		11		4	4		3	3	1		2	1	1	4	2		1	2																		4			67
1821		1		5		1	16	4	7	2	5	8		5	5	5				1	6	3	1																				2			77

Year of Admission.	Maine.	New Hampshire.	Vermont.	Massachusetts.	Rhode Island.	Connecticut.	New York.	New Jersey.	Pennsylvania.	Delaware.	Maryland.	Virginia.	West Virginia.	North Carolina.	South Carolina.	Georgia.	Alabama.	Mississippi.	Louisiana.	Ohio.	Kentucky.	Tennessee.	Indiana.	Illinois.	Missouri.	Arkansas.	Michigan.	Florida.	Texas.	Iowa.	Wisconsin.	California.	Minnesota.	Oregon.	New Mexico.	Utah.	Washington.	Nebraska.	Kansas.	Dakota.	Colorado.	Nevada.	Dist. of Columbia.	At Large.	Unknown.	Total.
1835..	5	1	2	4	...	1	13	1	10	...	2	1	...	4	3	...	1	...	2	5	3	7	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	1	74
1836..	4	4	1	2	3	2	19	4	8	...	2	10	...	5	3	5	2	1	1	7	3	5	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	97
1837..	2	1	...	5	...	3	17	3	13	1	6	11	...	6	6	6	2	...	...	6	4	3	3	2	...	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	4	7	...	117
1838..	1	1	2	2	1	2	9	...	8	1	3	10	...	4	3	6	3	...	2	7	6	6	2	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	26	...	111
1839..	2	1	2	2	1	2	12	4	7	1	1	2	...	1	2	2	3	...	...	3	6	1	2	...	1	1	1	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	13	...	76
1840..	4	...	...	6	2	...	16	1	7	1	2	5	...	7	4	4	...	1	1	6	5	5	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	...	84
1841..	3	2	2	7	...	4	12	...	11	...	3	10	...	3	4	5	1	...	2	8	4	7	3	1	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	17	...	114
1842..	2	1	1	7	1	1	12	3	11	...	4	9	...	4	6	5	3	1	...	4	4	4	2	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	18	...	109
1843..	...	1	1	1	...	...	5	...	5	1	1	...	...	1	3	...	3	1	2	6	...	3	4	3	2	...	3	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	12	...	60
1844..	1	2	...	2	1	1	7	2	7	...	2	3	...	4	2	1	4	1	2	5	3	3	3	3	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	...	75
1845..	3	1	1	3	...	3	12	1	6	...	1	6	...	1	2	2	3	2	2	7	5	3	2	1	2	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	...	81
1846..	3	1	2	5	1	2	11	1	10	1	4	7	...	5	1	2	3	2	4	4	4	5	2	2	1	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	1	10	...	103
1847..	3	1	2	2	...	1	10	1	8	...	1	5	...	3	3	...	1	...	1	7	3	3	3	2	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	9	...	74
1848..	1	1	...	1	1	1	9	4	7	...	3	3	...	3	3	1	2	2	...	10	3	3	2	4	2	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	10	...	81
1849..	3	1	1	3	...	2	11	3	7	1	...	8	...	1	1	3	3	3	...	8	1	3	3	3	2	1	1	1	2	1	2	...	...	...	...	...	...	...	...	...	...	...	...	10	...	89
1850..	3	2	3	4	1	...	8	1	11	...	2	7	...	4	4	4	2	2	2	2	5	3	3	2	...	...	...	...	...	...	2	1	1	...	...	...	...	...	...	...	...	...	...	10	...	90
1851..	1	...	1	5	...	1	13	...	8	1	1	3	...	3	...	1	1	1	2	5	3	3	2	3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	11	...	71
1852..	2	...	...	...	1	1	13	3	5	...	3	3	...	3	1	...	2	1	2	7	5	7	5	1	2	...	3	...	...	1	...	1	...	...	...	1	...	...	...	...	...	...	1	16	...	90
1853..	2	2	...	3	...	3	8	3	4	...	3	5	...	3	2	2	4	...	1	6	4	2	3	1	3	...	1	1	1	2	...	...	...	...	1	...	...	...	...	...	...	...	...	10	...	83
1854..	3	...	2	5	1	1	10	2	10	...	4	5	...	2	3	1	4	3	2	6	1	6	2	4	3	2	1	...	1	...	3	1	1	1	...	1	...	...	...	...	...	...	...	10	...	103
1855..	...	...	1	3	2	1	11	1	11	1	1	2	...	3	2	1	...	1	1	7	1	...	3	7	1	...	1	1	1	...	1	2	...	...	1	...	1	...	1	...	...	...	...	10	...	80
1856..	2	1	1	2	...	...	11	2	8	...	1	3	...	...	1	1	1	1	2	4	3	4	3	...	2	1	2	1	1	1	2	...	...	1	...	...	...	...	...	...	...	...	1	10	...	78
1857..	3	2	...	2	1	2	6	1	8	...	1	7	...	2	2	2	2	3	2	5	7	4	1	1	2	...	1	...	1	1	...	1	...	...	1	...	...	...	...	...	...	...	...	10	...	82
1858..	2	...	...	5	...	1	5	2	3	...	2	4	...	4	2	5	2	1	1	9	1	4	6	1	...	...	...	1	...	1	...	1	1	...	...	...	...	1	...	...	...	...	...	10	...	75
1859..	...	...	1	1	...	1	4	2	8	...	1	2	...	2	1	2	2	2	2	4	3	4	3	2	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...	...	...	10	...	60
1860..	2	...	1	3	1	...	10	1	9	1	1	2	...	2	2	...	3	2	1	4	2	2	2	7	2	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	10	...	72
1861..	4	3	1	4	1	2	14	2	13	1	3	2	...	...	...	...	1	...	...	8	1	...	6	3	3	...	3	...	...	1	3	...	1	...	...	...	...	...	...	1	...	...	1	26	...	108
1862..	1	...	1	3	1	1	11	1	6	...	4	1	...	...	...	...	...	...	...	7	7	...	4	4	5	...	...	...	...	2	...	2	1	...	1	...	...	1	1	...	1	...	1	13	...	81
1863..	...	...	2	2	...	1	8	2	5	...	3	7	1	7	4	8	4	5	2	4	2	7	2	1	1	2	...	1	2	...	...	1	...	1	1	...	...	...	...	...	...	1	...	10	...	97
Total	102	78	104	232	42	102	650	101	424	41	179	379	1	190	159	139	88	51	67	243	196	178	109	81	67	17	38	20	11	14	17	10	6	3	5	3	2	2	3	1	1	1	113	330	26	4,626

Note.—Owing to the destruction of the records by fire in 1838, the States in which some of the Cadets resided previous to that event is given; though it is believed they were appointed "At Large." The President of the United States having determined late in August, 1863, to fill all the existing vacancies from the seceded States there were in the Fourth Class, numbering 97, on the 19th of October, 43 thus appointed. 10 Cadets similarly appointed had not, on that date, been examined for admission into the Military Academy.

THE FOLLOWING STATEMENT EXHIBITS THE ACTUAL NUMBER OF CADETS WHO HAVE GRADUATED AT THE MILITARY ACADEMY, FROM ITS ORIGIN TO THE PRESENT DATE, WITH THE STATES AND TERRITORIES WHENCE APPOINTED.

Year of Graduation.	Maine.	New Hampshire.	Vermont.	Massachusetts.	Rhode Island.	Connecticut.	New York.	New Jersey.	Pennsylvania.	Delaware.	Maryland.	Virginia.	North Carolina.	South Carolina.	Georgia.	Alabama.	Mississippi.	Louisiana.	Ohio.	Indiana.	Illinois.	Kentucky.	Tennessee.	Arkansas.	Missouri.	Michigan.	Wisconsin.	Dist. of Columbia.	Florida.	At Large.	Iowa.	Texas.	Utah Territory.	Minnesota.	Washington Ter.	Oregon.	New Mexico Ter.	California.	Nebraska Ter.	Aggregate.
1802				1							1																													2
1803				1			1					1																												3
1804			1	1																																				2
1805						1	1						1																											3
1806			5	1			2	1	1					1											4															15
1807			4				1																																	5
1808		2	6	3		1	1			1															1															15
1809			2	1			3				1																													7
1811	1	1	3	1		2	5	1	2		1	1																1												19
1812	1		3	2		3	4	1	1			1		1														1												18
1813							1																																	1
1814		1	2	5		1	9		3			1	1							1		1						5												30
1815			1	5			14		1		4	2		2	3				4									4												40
1817	1		1		1		4		1			8								1		1						1												19
1818			1	2		1	3	1	2	2	5	3	1									1						1												23
1819		1	3	4		1	6	2		1	3	2	1	1				1			1	1						1												29
1820				1			11	1			5	3	3	1					1				2					2												30
1821		1		4		1	6		2		2	1		3	1				1	1			1																	24
1822		2	3	2	1	5	6	2	6			5	1	1		1			2			1	1					1												40
1823		1	3	4	1	3	5	2	3	2			3	1			1					2	1			1		2												35
1824	1	3		5			6		4		3	2		2			1	1				2	1																	31
1825		1	1	2		1	9	3	5		3	3	2	2	2							2	1																	37
1826	1	2	2	1	1		2	1	7	1	2	8	3	2	1			1		1		1	1		1			1	1											41
1827			3	4			6		4		2	4	3	2		1			3			4				1		1												38
1828	3	1	2	4		5	2	1	1		1	1		1		1	1	1	2	2	1		2		1															33
1829	2	1	1	5		3	7	3	4		2	2	2	3	3				4	1		2						1												46
1830	2		1	1	2		6	1	4	1	4	2	2	1	1			1	1	1	1	4	2		1			3												42

CADETS WHO HAVE GRADUATED AT THE MILITARY ACADEMY.

Year of Graduation.	Maine.	N. Hampshire.	Vermont.	Massachusetts.	Rhode Island.	Connecticut.	New York.	New Jersey.	Pennsylvania.	Delaware.	Maryland.	Virginia.	North Carolina.	South Carolina.	Georgia.	Alabama.	Mississippi.	Louisiana.	Ohio.	Indiana.	Illinois.	Kentucky.	Tennessee.	Arkansas.	Missouri.	Michigan.	Wisconsin.	Dist. Columbia.	Florida.	At Large.	Iowa.	Texas.	Utah Territory.	Minnesota.	Washingt'n Ter	Oregon.	N. Mexico Ter.	California.	Nebraska Ter.	Aggregate.
1831	1	1	...	...	1	...	8	2	4	1	3	2	2	1	1	...	...	...	3	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	33
1832	3	3	1	2	1	1	6	1	5	...	2	4	1	1	...	1	1	...	3	...	1	3	3	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	45
1833	...	2	1	7	...	2	5	1	5	1	1	5	1	2	1	2	...	...	...	1	...	1	2	...	1	...	...	2	...	...	...	...	...	...	...	...	...	...	...	43
1834	...	1	2	1	...	1	7	...	6	...	1	5	...	1	1	...	...	...	1	1	...	4	1	...	1	...	...	1	1	...	...	...	...	...	...	...	...	...	...	36
1835	4	1	1	4	...	...	11	2	4	1	2	4	3	2	3	1	...	...	4	...	...	4	1	...	...	...	...	3	...	1	...	...	...	...	...	...	...	...	...	56
1836	2	3	1	1	3	1	10	3	6	1	2	5	2	2	...	...	...	...	...	1	...	2	1	...	...	...	...	1	...	2	...	...	...	...	...	...	...	...	...	49
1837	1	1	1	6	...	2	4	3	5	2	4	6	2	...	2	1	...	...	...	2	1	1	1	...	1	1	...	3	...	...	...	...	...	...	...	...	...	...	...	50
1838	...	...	2	...	...	1	7	...	4	...	1	3	1	2	2	2	2	2	3	...	1	3	2	...	1	1	...	1	...	4	...	...	...	...	...	...	...	...	...	45
1839	2	1	1	2	...	1	6	...	5	...	1	1	1	1	...	...	...	...	3	1	...	3	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	31
1840	3	1	...	2	...	...	8	1	3	...	...	4	3	...	...	...	...	1	6	...	...	...	3	...	...	...	...	2	1	4	...	...	...	...	...	...	...	...	...	42
1841	1	1	1	5	...	2	6	...	7	1	4	7	1	3	...	...	...	...	2	3	2	1	1	1	...	1	...	...	...	2	...	...	...	...	...	...	...	...	...	52
1842	1	1	1	2	2	...	7	1	5	...	2	7	1	3	1	2	1	1	4	1	1	3	1	...	...	...	...	2	...	6	...	...	...	...	...	...	...	...	...	56
1843	2	1	2	...	...	1	7	2	4	...	...	3	...	...	...	...	...	...	3	2	...	2	1	...	1	1	...	...	...	6	1	...	...	...	...	...	...	...	...	39
1844	...	1	...	1	1	1	2	...	3	1	2	1	1	...	...	...	...	...	2	...	...	4	1	1	...	...	...	2	...	1	...	...	...	...	...	...	...	...	...	25
1845	3	...	1	2	...	1	8	...	1	...	...	2	1	...	2	...	...	1	4	2	...	3	1	...	...	...	...	...	1	8	...	...	...	...	...	...	...	...	...	41
1846	2	1	2	4	1	1	10	1	8	...	3	5	2	1	4	...	...	...	...	...	1	1	3	...	...	...	...	1	...	8	...	...	...	...	...	...	...	...	...	59
1847	...	...	...	...	...	...	5	...	3	...	...	2	1	2	...	...	...	...	8	4	2	...	...	...	1	1	...	...	...	8	1	...	...	...	...	...	...	...	...	38
1848	1	1	...	...	...	...	5	3	5	...	...	1	1	3	...	2	...	...	1	1	2	...	2	1	...	1	1	...	...	7	...	...	...	...	...	...	...	...	...	38
1849	...	1	1	2	...	2	5	...	3	...	...	5	...	...	2	...	2	...	4	2	...	2	2	...	1	...	...	...	1	5	...	...	...	...	...	...	...	...	...	43
1850	3	1	1	3	1	...	7	...	6	...	3	2	2	1	2	...	...	2	...	...	1	2	2	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	44
1851	1	...	1	3	...	1	6	...	5	...	...	2	3	...	...	1	...	1	2	2	1	2	3	...	...	...	...	1	...	6	1	...	...	...	...	...	...	...	...	42
1852	...	...	...	...	1	1	7	2	4	...	2	...	2	...	...	2	1	...	6	2	1	2	1	...	1	2	...	...	...	6	...	...	...	...	...	...	...	...	...	43
1853	1	1	...	2	...	1	5	1	8	...	1	5	...	2	3	1	...	...	3	3	2	1	2	...	2	...	...	...	1	5	1	1	...	...	...	...	...	...	...	52
1854	2	1	2	1	1	...	4	1	5	...	...	4	2	3	2	2	2	1	1	1	...	...	1	...	...	...	3	...	...	6	...	1	...	...	...	...	...	...	...	46
1855	...	1	1	4	...	...	7	...	3	1	...	...	2	...	1	...	...	1	2	1	2	...	...	...	...	...	...	...	...	8	...	...	...	...	...	...	...	...	...	34
1856	1	...	...	...	...	...	8	1	8	...	...	2	1	...	...	1	1	...	3	2	...	4	2	...	1	2	...	1	...	10	...	...	...	...	...	...	...	...	...	48
1857	2	2	...	2	...	2	3	1	1	...	...	3	...	2	4	2	...	...	2	1	1	3	1	...	2	...	...	...	...	3	1	1	...	...	...	...	...	...	...	39
1858	1	...	...	4	...	1	1	1	1	...	2	...	2	1	2	1	1	...	2	1	...	1	1	...	...	...	...	...	...	3	...	...	1	...	...	...	...	...	...	27
1859	...	...	1	...	...	...	4	...	4	...	1	1	...	...	...	1	...	...	2	...	1	...	1	...	...	1	1	...	...	3	...	...	...	1	...	...	...	...	...	22
1860	1	...	1	3	1	...	7	1	3	1	1	...	2	2	...	1	...	...	3	1	6	...	...	1	...	...	...	...	...	5	...	...	...	...	1	...	...	...	...	41
1861	3	3	1	3	1	2	15	2	10	...	1	1	...	...	...	...	...	...	5	1	1	4	1	1	2	3	2	1	...	14	1	...	...	...	...	1	1	...	...	80
1862	1	...	...	3	...	1	3	...	2	...	...	...	...	...	...	...	...	...	6	1	...	1	1	...	1	...	...	...	...	5	...	...	...	1	...	...	...	1	1	28
1863	...	...	1	2	...	1	4	1	5	...	1	...	...	...	...	...	...	...	3	2	...	2	...	...	...	...	...	2	...	...	...	...	...	...	1	...	...	...	...	25
Total	54	47	73	181	20	55	329	51	197	18	79	142	68	59	44	26	14	15	118	48	30	88	56	5	24	17	7	50	6	189	6	3	1	2	2	1	1	1	1	2020

TABLE D.

EXHIBITING THE WHOLE NUMBER OF CADETS ADMITTED TO
FROM EACH STATE AND TERRITORY, AND THE WHOLE

STATE AND TERRITORY.	Admitted.		Graduated.			Fail'd t
	From	Total.	From	Total.	Per cent.	Numbe
Alabama,	1817	88	1822	26	.295	
Arkansas,	1827	17	1841	5	.294	....
California,	1850	10	1863	1	.100	
Connecticut,	1802	102	1805	55	.539	
Delaware,	1806	41	1808	18	.439	
Florida,	1822	20	1826	6	.300	
Georgia,	1813	139	1815	44	.329	
Illinois,	1815	81	1819	30	.370	
Indiana,	1812	109	1814	48	.440	
Iowa,	1839	14	1843	6	.428	
Kansas,	1855	3	....	.....	......	
Kentucky,	1813	196	1819	83	.423	
Louisiana,	1817	67	1819	15	.223	
Maine,	1808	102	1811	54	.529	
Maryland,	1802	179	1802	79	.441	
Massachusetts,	1802	232	1802	131	.321	
Michigan,	1814	38	1823	17	.447	
Minnesota,	1850	6	1859	2	.333	
Mississippi,	1819	51	1823	14	.274	
Missouri,	1802	67	1806	24	.358	
New Hampshire,	1817	78	1808	47	.602	
New Jersey,	1803	101	1806	51	.504	
New York,	1802	650	1803	329	.506	
North Carolina,	1803	190	1805	63	.331	
Ohio,	1813	243	1815	118	.485	
Oregon,	1854	3	1861	1	.333	
Pennsylvania,	1804	424	1806	197	.464	
Rhode Island,	1814	42	1817	20	.476	
South Carolina,	1809	159	1806	59	.371	
Tennessee,	1815	178	1820	56	.314	
Texas,	1840	11	1853	3	.272	
Vermont,	1803	104	1804	75	.721	
Virginia,	1802	379	1803	142	.374	
West Virginia,	1863	1	....	.....	......	....
Wisconsin,	1837	17	1848	7	.411	
Dist. of Columbia,	1806	113	1811	50	.443	
New Mexico,	1852	5	1861	1	.200	
Utah,	1853	3	1858	1	.333	
Washington,	1855	2	1861	2	.100	....
Nebraska,	1858	2	1862	1	.500	....
Dakota,	1861	1	....	.....	......	....
Colorado,	1863	1	....	.....	......	....
Nevada,	1863	1	....	.....	......	....
At large,	1837	330	....	139	.421	
Unknown,	1803	26	....	.....	......	....
Total,		4,626		2,020		

The Totals in the column of Cadets admitted, graduated, and fail
and Territory, and for the country at large, are obtained from Table
in his "History of the United States Military Academy." The per
&c., is calculated from the totals thus obtained. The minute accu
effected by the difficulty of assigning the twenty-six Cadets admit
was unknown, to their respective States. The column of Cadets to w
is entitled in the apportionment of members of Congress under the C
as States not involved in rebellion are concerned; the latter is given

OPINIONS OF COL. THAYER AND OTHERS.

On the recommendations of the Board of Visitors as to the conditions of admission to the United States Military Academy at West Point.

EXTRACT from a letter of COL. SYLVANUS THAYER, Superintendent of the United States Military Academy, from 1816 to 1831.

"The Extracts from the Report of the Visitors at West Point, for 1863, I have read with the highest satisfaction, not to say admiration. The subject of the admission of Cadets, their number, age, attainments, and mode of appointment, is discussed in the most complete and able manner, *ne laissant rien a desirer*, as far as I can see. I am naturally the more pleased from finding my own views so perfectly reflected in many important particulars. The only difference I notice is the small addition to my standard of attainment for admission. I not only agree to that, but would raise the standard as high as Congress would be willing to adopt. The higher the standard, the more perfect will be the test of capacity. The subject, as you may well suppose, is not a new one with me. More than forty years ago I made my first effort to have the mode of appointment by nomination, done away with, and admission by open competition adopted. My last effort before the late one, was made in 1858, while I was in command of the Corps of Engineers, during the absence of Gen. Totten. At the same time, I recommended a higher standard of attainment, a Board of Improvement, and some of the other changes comprised in my "Propositions," but with little expectation, however, that my solitary voice would be heeded. After long despairing, I am now encouraged and cheered. Admission by competitive examination, open to all, may not be attained as soon as we wish, but come it must at no d stant day. Let every future Board of Visitors recall the attention of the Government to your excellent Report; no new arguments are needed, and let all the publications devoted to the cause of education, agitate the question unceasingly.

We have been favored with the perusal of the "Propositions, referred to in Col. Thayer's letter, and submitted by him to the Secretary of War, in 1863, with "Suggestions for the Improvement of the United States Military Academy." So far as the Visitors go, their views, and those of Col. Thayer, are almost identical, but Col. Thayer's communication to the Secretary includes many other suggestions relating to the instruction, discipline, and administration of the institution, which we hope will be adopted by the Secretary, and embodied in the Regulations.

In addition to the modifications suggested by Col. Thayer, we should like to see the theoretical course at West Point reduced to two years; and Special Courses, or Schools of Application and Practice established for the Engineer, Artillery, Cavalry, open only to those who should show natural apt amount of acquired knowledge, whether gradu course of West Point, or any State scientific o a competitive examination. In each of these cou should be a graduation, and promotion, in tl according to merit. Our whole system of should terminate in a STAFF SCHOOL, open only dition to the knowledge required for graduation above special courses, should have had at leas experience in service. While members of tl candidates for the Staff Corps, should, if call authorities, assist without compensation, in Encampments of the Officers of the State M every year in Switzerland, and corresponding t this country to Teacher's Institutes. The gr School, should constitute the Staff Corps, from in the higher offices of the Regular Army shou appointments to new regiments be made.

EXTRACT from a letter of GEN. H. K. OLI

I have read with the utmost care, the Extract fr Board of Examiners of the Military Academy at W 1863, and most heartily concur in the views therei cially in that portion of it, which recommends a co of candidates for admission. In all its relations i stands out prominently as the only proper mode of

My intimate acquaintance with the Academy, h amination in 1846, by invitation, and again in 18 Board of Visitors for that year, enables me to s authority. These visits afforded me opportunities, the utmost, and most minutely, to become intimate effect of the prevailing method of selection, and upon character and scholarship after admission, as what degree of fidelity, the institution was answe founding, and the just expectation of the country; fied, and subsequent observation has confirmed m whatever of deficiency prevailed, was traceable to sion. Faithful teachers and faithful teaching will but they can not make good, incompetent natural e vigor and life into sluggish natures. I sincerely h ment will feel the force of your views, and comply mendable recommendations.

RESOLUTION adopted by the American Institute of Instruction at the Annual Meeting in August, 1863.

WHEREAS, the security and honor of the whole country require in the military and naval service the right sort of men with the right sort of knowledge and training; *and whereas*, the military and naval schools established to impart this knowledge and training will fail in their objects, unless young men are selected as students, of the right age, with suitable preparatory knowledge, with vigor of body, and aptitude of mind, for the special studies of such schools; *and whereas*, the mode of determining the qualifications and selecting the students, may be made to test the thoroughness of the elementary education given in the several States, therefor

Resolved, That the Directors of the American Institute of Instruction are authorized and instructed to memorialize the Congress of the United States, to revise the terms and mode of admission to the National Military and Naval Schools, so as to invite young men of the right spirit, and with vigor and aptitude of mind for mathematical and military studies, who aspire to serve their country in the military and naval service, to compete in open trial before intelligent and impartial examiners in each State, without fear or favor, without reference to the wealth, or poverty, or occupation, or political opinions of their parents or guardians, for such admission, and that in all cases the order of admission shall be according to the personal merits and fitness of the candidate."

EXTRACT from letter of Prof. Monroe, St. John's College, Fordham, N. Y.

I rejoice that some one has taken hold of this subject at last. It needs only to be understood to be adopted; for I can not see from what quarter any opposition to it can arise. You rightly observe that "all the educational institutions of the several States" are interested in this mode of appointment. Great Britain, France, and many of the Continental States admit to their military schools the most competent young men who present themselves, and the method is found to be as economical as it is equitable. Long years of *winnowing* is saved to the Government; for the subjects who present themselves are, of course, the most capable. For several years I was a witness of the beneficial effects produced on youth in France by the stimulation of their energies in order to undergo an examination for admission into the military or naval schools. Our present mode of appointment appears to be an anomaly; for while monarchies find it expedient to adopt a less exclusive mode of sustaining their military organizations, we still cling to one founded on patronage and prerogative. Many of our young men in different colleges and educational institutions have a taste and vocation to the military profession, and have an equal right to compete for a place in the only fields where such a taste can be gratified—viz, in the army and navy. These careers should then be open to them. There is danger and want of policy in suppressing the legitimate aspirations of young men in a nation which is, say what we can, passionately fond of military glory.

EXTRACT from the Report of the Board of Visitors of the U. S. Military Academy at West Point for 1864.

The main features of the Report of the Visitors for 1863 we most cordially approve, especially its recommendations of competitive examination, and raising the age and qualifications of candidates for admission. The only student who obtained his appointment through competitive examination (introduced into his district by the member of Congress upon whose recommendation he was appointed from the common schools* of New York) graduated at the head of his class this year.

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* The successful candidate, out of twenty competitors, was a member of the Free Academy of the city of New York, and stood in scholarship about the middle of his class.

The beneficial effect on schools, as regards both pupils and teachers, of throwing open appointments in civil, as well as in military and naval service, to competition, and giving them to the most meritorious candidates, on examination, is thus commented on in the Report of the Queen's Commissioners on the Endowed Schools of Ireland:

> This measure has received the unanimous approval of our body, who regard it as an effectual method of promoting intermediate education. The experience already obtained respecting the operation of public and competitive examinations, so far as they have hitherto been tried, leaves no doubt on our minds that the extension of this system would, under judicious management, produce very beneficial effects, both in raising the standard of instruction, and in stimulating the efforts of masters and of pupils. The educational tests adapted for examinations for the public service would be, in our opinion, of all others the most general in their character, and therefore, those best calculated to direct the efforts of teachers to that course of mental discipline and moral training, the attainment of which constitutes, in our opinion, the chief object of a liberal education. The experience of the civil service commission has shown the shortcomings of all classes in the most general and most elementary branches of a literary and scientific education.

These views are strongly corroborated by the testimony, appended to the Report, of prominent teachers and educators consulted on the subject:

Prof. Bullen, in the Queen's College, Cork, remarks:—"No movement ever made will so materially advance education in this country as the throwing open public situations to meritorious candidates. It has given already a great impulse to schools and will give greater. The consequence of throwing the civil service open to the public is already beginning to tell—although only in operation a few months, it has told in a most satisfactory manner in this city; and, from what I can see, it will have the happiest results on education generally."

Prof. King, Head Master of a Grammar School at Ennis, writes:—"These examinations have already caused improvements in my own school by inducing me to give instruction in branches which I had never taught before."

The Dean of Elphin, the Archdeacon of Waterford and the Bishop of Doun, advocate the measure on the ground of its tendency to produce competition between schools, and to stimulate private enterprise. The Bishop of Cashel "thought that this competition would be more valuable than the endowment of schools giving education gratuitously."

In confirmation of the above views, and as an illustration of the benefits likely to accrue both to the cause of education and to the public service from the extension of the system of competitive examinations, we may add that, at the late competitive examination for certificates of merit held by the Royal Dublin Society, Mr. Samuel Chapman, who was educated solely by the Incorporated Society, as a foundation boy, obtained the first place and a prize of £5. In consequence of this success the Bank of Ireland immediately appointed him to a clerkship. Mr. Chapman was originally elected to the Pococke Institution, from a parish school, by a competitive examination; and on his leaving the Santry school Prof. Galbraith appointed him his assistant in Trinity College, in consequence of the skill in drawing which he exhibited, and his knowledge of mathematics, as proved by his final examination.

III. COMPETITIVE EXAMINATION AT WEST POINT.

DEBATE IN THE UNITED STATES SENATE, MAY 18TH, 1864.

THE Bill making appropriation for the Military Academy being under consideration, Senator Anthony, of R. Island, remarked on the following amendment:

And be it further enacted, That hereafter, in all appointments of cadets to the Military Academy at West Point, the selections for such appointments in the several districts shall be made from the candidates according to their respective merits and qualifications, to be determined under such rules and regulations as the Secretary of War shall from time to time prescribe.

This, Mr. President, is substantially the proposition which I offered at the last session; and although I was not so fortunate as to obtain for it the assent of the Senate, mainly from an apprehension of practical difficulties in carrying out what is admitted to be a desirable reform if it could be effected, yet the general expression of Senators was so much in favor of the principle, and I have been so much strengthened in my views on the subject by subsequent reflection and examination, that I am emboldened to renew it.

I differ entirely from those who are fond of disparaging the Military Academy. It has been of incalculable service to the country; it is the origin and the constant supply of that military science without which mere courage would be constantly foiled, and battles would be but Indian fights on a large scale. Not to speak of the Mexican war, throughout the whole of which West Point shone with conspicuous luster, it is safe to leave the vindication of the Academy to the gallant and able men who have illustrated the annals of the war that is now raging. Nor have its indirect advantages been less marked than its direct. It has kept alive a military spirit, and kept up a good standard of military instruction in the volunteer militia. It furnished, from its graduates who have retired from the Army, scores of men who rushed to the head of our new levies, who organized and instructed them, inspired them with confidence, and led them over many a bloody field to many a glorious victory. Large numbers of our best volunteer officers owe their instruction indirectly to West Point.

To say that no course of military instruction can make a pupil a military genius, can create in him that rare quality that takes in at a glance, almost by intuition, the relative strength of great masses opposed to each other, and that power of combination which can bring an inferior force always in greater number upon the severed portions of a superior force, is very true. To discard military education on that account would be like shutting up the schools and colleges because they can not turn out Miltons and Burkes and Websters. Education does not create, it develops and enlarges and inspires and elevates. It will make the perfect flower, the majestic tree, from the little seed; but it must have the seed. And what I desire is that the Academy at West Point should have the best seed; that its great resources, its careful culture, its scientific appliances, should not be wasted on second-rate material. The Academy has never had a fair chance; the country has not had a fair chance; the boys have the country. I desire that the Academy shall begin, as it goes on, upon the not had a fair chance. This is what I want them all to have, and especially competitive principle. As all its standing, all its honors, are won by competition, so should the original right to compete for them be won. I would give all the youth of the country a fair chance; and, more desirable than that, I would give the country a fair chance for all its youth. I would have the Academy filled up by those young men who, upon examination by competent judges, should be found most likely to render the best service to the country; to make the best officers; whose qualifications, physical, intellectual, and moral, whose tastes and habits, should seem to best fit them for military life.

But, it is objected, no such examination would be infallible. Of course it would not be. No human judgment is infallible. Our deliberations are not infallible; but therefore shall we not deliberate? The decisions of the Supreme Court are not infallible; therefore shall we abolish the court?

A SENATOR. The Senator from New Hampshire would say yes.

MR. ANTHONY. I know the Senator from New Hampshire [Mr. HALE] would say "Yes." He would abolish both the Academy and the Court, and I can well suppose that the policy which would abolish the one might abolish the other. But although such an examination would not be infallible, it would, if properly organized and properly conducted, accomplish much toward the reform which all admit to be desirable, if it be practicable. It can not be doubted that the young men who would come out best from such a trial would, as a body, be superior to those who are selected upon mere personal preferences, and these preferences generally not for themselves, but for their parents; not for their own qualifications, but as a recognition of the political services of their fathers.

But, again, it was objected when I made this proposition a year ago that it was not equal; because, in giving to any given place of examination, some young men would have further to travel than others! If this objection had not been gravely made by men for whom I have the highest respect I should be tempted to call it puerile. A boy asks the privilege of going a hundred miles to the place of examination, and is told that he can not have it because another boy will have to go two hundred miles, and another but fifty, and it is not equal! The fact that either of them would go five hundred miles on foot for the opportunity of competition is not taken into the account. On the same principle our elections are not equal, for one man must travel further than another to reach the polls. For a boy who can not obtain the means to travel from his home to the place of examination—and there will be very few such of those who would be likely to pass high in the examination—the plan proposed would be no worse, certainly, than the present system; for those who have the means the difference in travel is too small an item to enter into the account.

No plan can be made perfectly equal. Shall we therefore refuse to make a large advance toward equality? Certainly the system which invites a competition from all who are in a condition to avail themselves of it is more equal than that which excludes all competition. But although equality in the advantages of the Academy is very desirable, and although the amendment proposed would be a long step in that direction, it is not for that reason that I urge it. It is not to give all the young men an equal chance for the Academy, it is to give the Academy a chance for the best young men; and although even under this system the best young men will often fail of success, it can not be doubted that many more of them will enter the service than under the present system.

Nor will the advantages of this competition be confined to those who reach the prize for which so many will struggle. An incalculable although an incidental benefit will accrue to the thousands whose youthful hearts will be stirred by an honorable ambition, and who will cultivate their minds by liberal studies and develop their physical power by manly exercises in the struggle upon which the humblest may enter, and in which the proudest can obtain only what he fairly earns. Under the present system the Academy wastes full half its strength upon boys who never ought to be admitted, and whose natural incapacity derives but little benefit from the partial training that they receive there. Under the system proposed, the Academy would exert its influence upon thousands of the brightest and most aspiring boys all over the country, stimulating them to the pursuit of such studies and to the formation of such habits as, if they fail to carry them to West Point, will help to conduct them to usefulness and honor in whatever path of life they may choose.

But, again, we are met with the objection that this proposition is impracticable, that it looks very well on paper, but that it can not be carried into effect. Let us see. It is quite safe to conclude that what has been done can be done, and that what wise and judicious people do, and persist in doing after experiment, is proper to be done. What is the most warlike nation of Europe? What nation of Europe has carried military science to the highest degree? What nation of Europe has the greatest genius for organization? You will say the French. Let us see what is their sytem. I read from the report of the Commission appointed by Congress in 1860 to visit the Military Academy at West Point, and report upon the system of instruction; a commission of which you, Mr. President, [Mr. FOOT,] were a member:

Among the European systems of military education that of France is preëminent. The stimulating principle of competition extends throughout the whole system; it exists in the appointment of the student, in his progress through the preliminary schools, in his transfer to the higher schools, in his promotion to the Army, and in his advancement in his subsequent career. The distinguishing features of the French system are thus described by the British commissioners.

"1. The proportion, founded apparently upon principle, which officers educated in military schools are made to bear to those promoted for service from the ranks. 2. The mature age at which military education begins. 3. The system of thorough competition on which it is founded. 4. The extensive State assistance afforded to successful candidates for entrance into military schools whenever their circumstances require it. * * * * * *

Admission to the military schools of France can only be gained through a public competitive examination by those who have received the degree of bachelor of science from the lycées or public schools, and from the orphan school of La Flèche.

A powerful influence has thus been exercised upon the character of education in France. The importance of certain studies has been gradually reduced, while those of a scientific character, entering more directly into the pursuits of life, have been constantly elevated.

The two great elementary military schools are the School of St. Cyr and the Polytechnic School. These, as well as the other military schools, are under the charge of the Minister of War, with whom the authorities of the schools are in direct communication. Commissions in the infantry, cavalry, and marines can only be obtained by service in the ranks of the army, or by passing successfully through the School of St. Cyr, admission to which is gained by the competitive examination already referred to."

Again, the Commission say, speaking of the School of St. Cyr:

The admission is by competitive examination, open to all youths, French by birth or by naturalization, who, on the 1st of January preceding their candidature,

were not less than sixteen and not more than twent
ination are also admitted soldiers in the ranks betwe
years, who, at the date of its commencement, have
.their regiments for two years.
A board of examiners passes through France once
all who present themselves having the prescribed qu
A list of such candidates as are found eligible for
mitted to the Minister of War. The number of vac
termined, and the candidates admitted are taken in
Twenty-seven, or sometimes a greater number, ar
their second year of study, placed in competition w
from the second lieutenants belonging to the army,
for admission to the Staff-School at Paris. This adv
serves as a stimulus to exertion, the permission bei
in the classification by order of merit.

In regard to the Polytechnic School, the Commiss

Admission to the School.is, and has been since
1794, obtained by competition in a general examina
to all. Every French youth between the ages of si
the army up to the age of twenty-five) may offer hi

This is the system which was organized by Carnot
by Napoleon. Under this system the French arm
of organization, its high discipline, its science, its da
But not the French alone have adopted the compe
all whose traditions are aristocratical, where promoti
been made by patronage and by purchase, the sturd
tion has pushed away the obstructions that have blo
army, and have opened them to merit, come from w
commencement of the Crimean war, the English
evident inferiority of their army to the French. T
how to take care of their men, or how to fight them.
British pluck and British persistence vindicated
have and always will, it was not till thousands of liv
might have been saved under a better system. No
permitted that memorable charge at Balaklava, wh
the stupidity that ordered it as for the valor that
been sung in verses nearly as bad as the generals
After the war, the English Government, with the
usually distinguishes it, came, without difficulty, to
was better than family in officering the army, and th
put its epaulets upon the shoulder of those who coul
lead them properly than upon those who could trace
queror, or whose uncles could return members of
the Royal Military Academy, which had been filled
was thrown open to public competition. On this su
interesting and valuable report of the Visitors of the

The same principle was applied to appointments
regiments called for by the exigencies of the great w
herself engaged.
Subjects, time, and place of examination were offic
out the kingdom, and commissions to conduct the ex
composed of men of good common sense, military offi
teachers and educators. The results, as stated in a
years later, on extending this principle to all public

ments and promotions in every department of the public service, were as follows: in the competitive examinations for admission to the Royal Military Academy candidates from all classes of society appeared—sons of merchants, attorneys, clergymen, mechanics, and noblemen, and among the successful competitors every class was represented. Among the number was the son of a mechanic in the arsenal at Woolwich, and the son of an earl who was at that time a cabinet minister—the graduates of national schools, and the students of Eton, and other great public schools.

On this point Mr. Edward Chadwick, in a report before the National Social Science Association, at Cambridge in 1862, says:

"Out of an average three hundred patronage-appointed cadets at the Royal Military Academy at Woolwich, for officers of engineers and the artillery, during the five years preceding the adoption of the principle of open competition for admission to the Academy, there were fifty who were, after long and indulgent trial and with a due regard to influential parents and patrons, dismissed for hopeless incapacity for the service of those scientific corps. During the five subsequent years, which have been years of the open-competition principle, there has not been one dismissed for incapacity. Moreover, the general standard of capacity has been advanced. An eminent professor of this university, who has taught as well under the patronage as under the competitive system at that Academy, declares that the quality of mind of the average of the cadets has been improved by the competition, so much so that he considers that the present average quality of the mind of cadets there, though the sorts of attainment are different, has been brought up to the average of the first-class men of this (Cambridge) university, which of itself is a great gain. Another result, the opposite to that which was confidently predicted by the opponents to the principle, has been that the average physical power or bodily strength, instead of being diminished, is advanced beyond the average of their predecessors."

I read this also from the same report:

Another result of immense importance to the educational interests of Great Britain has followed the introduction of these open competitive examinations for appointments to the military and naval schools, to the East India service, as well as to fill vacancies in the principal clerkships in the war, admiralty, ordnance, and home departments of the Government. A stimulus of the most healthy and powerful kind, worth more than millions of pecuniary endowment, has been given to all the great schools of the country, including the universities of England, Scotland, and Ireland. As soon as it was known that candidates, graduates of Trinity College, Dublin, had succeeded over competitors from Oxford and Edinburg in obtaining valuable appointments in the East India service, the professors in the latter universities began to look to their laurels. As soon as it was known to the master of any important school that some of his leading pupils might compete in these examinations, and that his own reputation as a teacher depended in a measure on the success or failure of these pupils, he had a new motive to impart the most vigorous and thorough training.

Such has been the result in France and in England. We are not without examples at home. The competitive system has been tried in repeated instances here in the appointments both to the Military and the Naval Academy. Several Representatives in Congress, with a conscientious sense of the responsibility resting upon them, have given their patronage to the result of general competition, among them the gentleman who so ably represented, in the last Congress, the district in which I live. The results have been most satisfactory. Here, again, I will quote from the report of the Board of Visitors for 1863:

The principle itself, of selection by merit, either in the mode of public examination or of careful and searching inquiry by competent and impartial educators designated for this purpose by the parties to whom custom, and not law, had assigned the grave responsibility of nominating candidates, has been voluntarily applied in several Congressional districts. Not a cadet known to have been thus selected and appointed has ever broken down from want of vigor of body or mind, or failed to reach and maintain an honorable position on the merit-roll

of the Academy; and to this careful selection by th
ity of the privilege accorded to them is the country
nent and useful officers.

The same report makes some observations on ano

To the objection that selection by public competiti
expense, we reply that any expense which will do
against the Academy, which the present system of p
directly and indirectly to evoke and foster, and whi
exclude incompetent and secure the services of vig
officers for every arm of the service, will be well inc
there will be no more expense in selecting and ed
cadets on this plan than on the present. The two
appointed by patronage and failed to graduate, cos
and indirectly, each year a much larger sum than it
excluded them in advance from the institution by co
filling their places by better men; and their exclu
material would have been an incalculable gain to t
discipline, increasing the value of its instruction, a
larger number of competent officers.

Even under the despotic government of Austria t
been adopted for the higher places, and it has bee
Italy. In Austria every subject can claim admissio
on payment of the cost of his instruction; and all th
are on the competitive system. On this subject I
Military Education and Schools, by Hon. Henry B
very front rank of the great educators, and who give
the weight of a name which alone should incline us

The yearly examinations, the manner in which th
aminations tell on the final one, and the careful cla
the order of merit, reminded us of the system of the
other school we have seen. * * * *

The arrangements for the general staff-school requ

In our report upon Austrian schools we have spec
remarkable for its thorough and open competitive c
and its very sensible plan of study. Admission to i
officers of all arms. The pupils are not unduly ove
haps there is even room for one or two more subject
is done seems to be done thoroughly. The office
leaving the school, according as the abilities they
sidered a criterion of their fitness for employment
this order they enter the staff corps. The conseq
knows distinctly, from the time that he first compe
final examination on leaving, that the order in w
depends entirely on his own exertions and success a
us that this open competition produced a spirit of c
students as great, if not greater, than any we met w

I quote from the same work in regard to the milit

Admission into the artillery and engineer school
ward of the most distinguished pupils of the *Ac*
spending their last year in that institution in the stu
ics, chemistry, and architectural drawing, are trans
their education to the school of the artillery and eng
The staff-school, the formation of which dates fro
by officers of the infantry and cavalry, who must be
eight years upon their entrance. It is carried on up
amination, the ablest entering the staff corps in that

In the same work Mr. Barnard characterizes the

The most striking features in the system of this s and throughout the course, are, that it is distinctly competitive, that it admits very young officers, and that while the work is considerable, the subjects for study are not numerous. In these three points it differs considerably from the Prussian staff-school, in which the students are generally older, and the principle of comp etition is not so fully carried out. In the Austrian school the students are placed. on entering, in the order which their entrance examination has just fixed. They are examined once a month during their stay. On leaving the school their respective places are again determined, and they have a claim for appointments in the staff corps in the exact order in which they were placed on leaving the school. In Belgium the competitive system is fully adopted.

The following testimony is from a report on the progress of the principle of competitive examination for admission into the public service, read before Section F. Economic Science and Statistics of the British Association for the Advancement of Science, at Leeds, September 27, 1858, by Edward Chadwick:

Mr. Canon Mosely attests that the "qualifications of the whole" body of competitive candidates appeared to rise above the general "level of the education of the country." It is stated in evidence before the commissioners for inquiring into the means of improving the sanitary condition of the army, that this was most decidedly so of the whole body of competing candidates for medical appointments in the East India service. Mr. Canon Mosely concludes his report on the last year's experience in the following terms: "With reference to the general scope and tendency of competitive examinations, I may perhaps be permitted the observation, that the consciousness which success in such examinations brings with it in early life of a power to act resolutely on a determinate plan, and to achieve a difficult success, contributes more than the consciousness of talent to the formation of a manly and honorable character, and to success on whatever career a man may enter."

The report of the last Board of Visitors at West Point, from which I have read, I believe has not yet been printed by Congress; I have read from a pamphlet copy of it printed in the Journal of Education. The Board was composed, as it usually is, of men of high character and ability. After a full and laborious examination of the whole subject, they unanimously and earnestly recommend the adoption of the competitive system.

If the appointments to fill and maintain the corps at this maximum [four hundred] can be selected out of the many American youths ambitious to serve their country in the Army, on the plan of an open competitive examination in the several States, the Visitors believe that ninety out of every one hundred thus appointed will go through the whole course with honor, and the average ability, scholarship, and good conduct of the whole corps will equal that now reached by the first ten of each class.

With such experience of other nations, with such examples at home, I submit that we may safely in this republican country give our young men the privileges that are conceded in imperial France and in aristocratic England; that we may safely place competition against patronage, and give to modest merit a chance with pretentious imbecility. I would go somewhat further in the competitive system. I would not have the Army or the Navy officered exclusively by the graduates of the national Academies. If any young man, at his own expense, and by his own study and aptitude for the profession, has fitted himself for a command in either, let the competition be open to him equally with those who have been instructed at the public expense, and let the epaulets rest on the shoulders that are most worthy to wear them. But I do not propose to follow the subject to this extent at present. I shall be abundantly content if the Senate will adopt the competitive system, which has worked so well in other countries and so well here as far as it has been tried, in the Military Academy.

TABLE VIII.—SUMMARY OF EXAMINATIONS FOR ADMISSION TO THE UNITED STATES MILITARY ACADEMY FOR FIFTEEN YEARS, FROM 1856 TO 1870, INCLUSIVE.

Appointed from—	Candidates.	Accepted, total.	Rejected.																							
			Total.	On what account.																						
				Physical disability.	Literary incompetency.																					
					In the year—															During fifteen years.	Deficient in—					
					1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.		Writing, including orthography.	Reading.	Arithmetic.	Geography.	Grammar.	History.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Alabama	32	20	12	1	..	1	..	1	..	..	..	..	1	..	..	..	3	1	4	11	5	3	4	7	7	7
Arkansas	10	7	3	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	2	1	1	1	1	2	..
California	15	12	3	....	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	3	....	..	2	3	2	3
Connecticut	22	14	8	2	..	..	2	..	..	..	..	..	..	..	1	..	..	..	3	6	2	..	4	1	2	2
Delaware	11	6	5	....	..	..	..	..	..	..	..	..	..	..	1	2	..	1	1	5	2	2	4	3	3	4
Florida	4	4	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
Georgia	32	23	9	....	..	2	1	..	..	..	..	..	..	..	..	..	4	2	..	9	7	2	7	4	3	5
Illinois	55	47	8	1	1	..	..	..	..	..	..	..	1	..	1	..	3	..	1	7	5	1	1	2	4	1
Indiana	67	46	21	2	1	2	..	3	1	..	..	1	2	3	2	2	1	1	..	19	17	8	9	3	3	3
Iowa	24	19	5	1	..	..	..	..	..	..	..	..	2	1	1	..	..	..	..	4	4	3	3	..	..	..
Kansas	6	3	3	....	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	3	2	..	1	2	1	1
Kentucky	60	43	17	....	1	..	1	..	..	1	..	1	2	1	..	..	3	2	5	17	8	5	9	7	6	6
Louisiana	18	14	4	1	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	3	2	..	3	1	1	1

Maine	26	22	4	....	..	..	..	..	..	..	..	1	..	..	..	..	..	1	2	4	3	..	2	3	1	2
Maryland	32	25	7	2	..	..	1	..	..	2	..	1	..	..	..	1	..	..	..	5	3	2	3	1	1	1
Massachusetts	43	42	1	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	....	..	....	..	1	..
Michigan	29	20	9	1	..	..	..	1	1	..	..	..	1	..	1	..	3	1	..	8	6	..	3	..	2	3
Minnesota	11	9	2	....	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	2	2	..	1	..	..	..
Mississippi	24	16	8	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	6	7	4	4	4	6	5	5
Missouri	48	32	16	1	1	..	1	3	2	..	..	..	..	..	2	..	2	..	4	15	12	6	7	1	6	3
Nebraska	5	4	1	....	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	....	..	....	..	1	1
Nevada	7	1	6	....	..	..	..	..	..	..	2	..	..	..	..	1	..	1	2	6	1	..	3	1	3	1
New Hampshire	14	12	2	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	....	1	..	1
New Jersey	27	25	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	....	..	1	..	..	1
New York	157	128	29	4	2	2	..	2	..	1	2	..	1	2	..	1	4	1	7	25	15	1	6	6	10	6
North Carolina	32	26	6	....	1	1	2	..	..	..	..	..	..	..	..	..	1	1	..	6	2	1	4	1	..	1
Ohio	111	80	31	4	3	2	1	1	2	2	3	..	1	1	2	2	1	1	5	27	18	13	9	3	6	4
Oregon	4	3	1	....	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	....	..	1	..	..	..
Pennsylvania	127	101	26	6	1	2	2	2	..	1	2	1	..	2	..	1	..	..	6	20	13	6	10	4	5	4
Rhode Island	7	7	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
South Carolina	22	17	5	1	..	1	..	..	..	..	..	..	..	..	..	..	1	1	1	4	2	..	3	1	2	2
Tennessee	48	33	15	3	..	..	1	..	1	..	1	..	1	1	1	1	3	1	1	12	10	4	3	3	2	2
Texas	8	5	3	....	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2	3	1	..	3	2	1	1
Vermont	13	12	1	....	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	....	..	..	..
Virginia	46	34	12	1	3	1	..	1	..	1	1	..	..	..	..	..	..	..	4	11	8	4	6	3	3	2
West Virginia	10	6	4	1	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	3	2	1	1	1	1	..
Wisconsin	27	20	7	2	..	..	..	1	1	1	..	..	..	..	..	..	..	2	..	5	3	1	3	..	1	..
Dist. Columbia	6	5	1	....	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	..	....	..	..	..
Colorado Ter	4	2	2	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	1	1	1	1	1	..
New Mexico	5	4	1	....	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	....	..	..	..
Utah Ter	3	3	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
Washington Ter	4	4	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
Dakota Ter	3	3	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
Arizona Ter	2	2	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
Idaho Ter	4	......	4	....	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	4	2	..	3	2	3	2
Montana	1	1	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
Wyoming Ter	1	1	......	....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	..	....	..	..	..
At large	192	170	22	3	..	1	1	1	..	..	..	2	..	..	1	2	1	3	7	19	7	7	8	6	9	6
Grand totals	1,459	1,133	326	41	16	16	14	16	9	11	11	8	13	11	15	14	36	23	70	285	173	76	133	80	98	81

TABLE VIII—Continued.—SUMMARY OF EXAMINATIONS FOR ADMISSION TO THE UNITED STATES MILITARY AND NAVAL ACADEMIES DURING THE YEAR 1871.

STATES AND TERRITORIES.	U. S. MILITARY ACADEMY.										U. S. NAVAL ACADEMY.									
			REJECTED.										REJECTED.							
				On what account.										On what account.						
					For deficiency in—										For deficiency in—					
	Candidates.	Accepted total.	Total.	Physical disability.	Reading.	Writing and orthography.	Arithmetic.	Geography.	Grammar.	History.	Candidates.	Accepted total.	Total.	Physical disability.	Reading.	Writing and orthography.	Arithmetic.	Geography.	Grammar.	History.
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Alabama	4	1	3	....	....	....	1	3	2	3	1	1	....	....	....	....	..	..	..	..
Arkansas	1	....	1	....	....	....	1	..	1	1	1	1	....	....	....	....	..	..	..	..
California	....	....	....	....	....	....	....	..	..	..	....	....	....	....	....	....	..	..	..	..
Connecticut	2	1	1	....	....	....	1	..	1	..	1	....	1	....	....	....	1	..	..	..
Delaware	1	1	....	....	....	....	....	..	..	..	1	1	....	....	....	....	..	..	..	..
Florida	....	....	....	....	....	....	....	..	..	..	....	....	....	....	....	....	..	..	..	..
Georgia	4	....	4	1	....	....	2	2	2	3	3	3	....	....	....	....	..	..	..	..
Illinois	3	2	1	....	....	....	1	..	..	..	5	3	2	....	....	2	2	2	1	..
Indiana	4	3	1	....	....	....	1	1	1	1	6	4	2	....	....	2	2	1	2	..
Iowa	4	2	2	1	....	....	....	..	1	..	....	....	....	....	....	....	..	..	..	..
Kansas	1	1	....	....	....	....	....	..	..	..	....	....	....	....	....	....	..	..	..	..
Kentucky	7	4	3	....	2	3	2	2	3	2	2	1	1	....	....	....	1	..	..	..
Louisiana	2	2	....	....	....	....	....	..	..	..	1	1	....	....	....	....	..	..	..	..

Maine	1	1									1	1								
Maryland											4	2	2			1	1	1		
Massachusetts	4	3	1	1							2	2								
Michigan											1		1				1	1	1	
Minnesota											1	1								
Mississippi	3	3									3	2	1			1	1	1	1	
Missouri	4	1	3			2			1	2	3	3								
Nebraska																				
Nevada	1	1																		
New Hampshire											1	1								
New Jersey	2	1	1						1	1	2	2								
New York	15	10	5	2		1		2	3	2	11	9	2			2	2	1	2	
North Carolina											2	1	1			1	1			
Ohio	9	8	1			1		1	1	1	5	3	2			1	2			
Oregon	1	1																		
Pennsylvania	13	8	5	2	1	1	1	1	3	2	5	1	4	1		3	3	3	2	
Rhode Island	2	1	1	1					1		1		1	1						
South Carolina											2	1	1				1			
Tennessee	4	3	1				1	1		1	5	3	2	1						
Texas	2	2																		
Vermont	1	1									2	1	1			1	1			
Virginia	5	1	4	1		1	2	1	2	2	1	1								
West Virginia	1	1																		
Wisconsin	2	1	1			1	1		1	1	2	2								
Arizona Ter											1	1								
Colorado Ter	1	1																		
Dakota Ter																				
District of Columbia																				
Idaho Ter																				
Montana Ter											1	1								
New Mexico Ter	1	1									1	1								
Utah Ter	1	1																		
Washington Ter											1	1								
Wyoming Ter																				
Foreign											*1	1								
At large	13	10	3	2			1				17	15	2			1	2	1	1	
Total	119	77	42	11	3	10	15	14	24	22	97	71	26	3		15	21	11	10	

* A Japanese student.

ARTILLERY SCHOOL AT FORTRESS MONROE.

HISTORICAL NOTICE.

THE Artillery School of the United States Army at Fortress Monroe, was organized and opened April 1, 1868, under a code of regulations and programme of instruction drawn up by Col. William F. Barry (who was placed in command from the start), and approved by the General of the Army. After two years of experience the code and programme were revised, and the present system established. The class of 1868 and of 1869, consisted, each, of twenty lieutenants of artillery, and of the whole number, thirty-eight were sent back to their regiments after having passed a satisfactory examination. To this number at the close of the school year (April) 1871, sixteen more out of the class of twenty were found qualified to return to their respective regiments; twenty more are now in the progress of instruction, constituting together one-half of all the officers of that grade belonging to the artillery.

COURSE OF INSTRUCTION.*

The course of theoretical instruction embraces the subjects of mathematics, ordnance, and gunnery, military engineering and surveying, military history, and military, constitutional, and international law. The method of pursuing these studies is very similar to that pursued at the Military Academy at West Point, viz., by recitations, questions, and demonstrations at the blackboard. In military history each officer is required, in addition to his regular recitations, to prepare and read before the class and staff of the school two essays or memoirs upon some battle, campaign, or the military events of some epoch of peculiar interest.

The topics for these essays are selected by the instructor in military history, with the approval of the commandant and superintendent of instruction, and are generally confined to events not prior to the last two decades of the eighteenth century.

The necessary maps, instruments, and apparatus for the elucidation or practical application of the various range of the theoretical course have to a co supplied to the school by requisitions upon t nance Departments of the Army. They are are of the greatest value.

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* Report of Col. Barry, dated September 12, 1871.

Instructions in the theoretical course is of autumn, winter, and the early spring, exce ematics, which unavoidably has to be given May, June, July, and August.

The course of practical instruction is p permits, throughout the entire year, but is m during the months of summer and autumn. of the service of every species of gun, how in the United States military service; of t kinds of projectiles and fuses; the laying of plane-tables, and telemeters, for ascertaining manœuvres; transportation and other handl nance, and particularly of the 15-inch guns a of 13-inch mortars and their beds, and of which has been adopted into the artillery of

The practical course also includes very f every description of ordnance; the duties of as they immediately concern officers of artill and recitation in the tactics for light and much of the tactics for infantry as is essenti

Guns, carriages, ammunition, platforms, ar ding hydraulic-jacks of greater or less power are supplied by requisition on the Ordnanc number and variety as may be desired. The be indebted to the Ordnance Department when necessary, of some of its instruments a mining initial velocities, pressures, densities,

Instruction in the practical course is desig as possible, and no officer leaves the school practically familiar with the tools of his trade intelligently.

A school for non-commissioned officers, an ed men as may desire to avail themselves of established. Every non-commissioned office instruction batteries is required to attend th full course of instruction; all other enlisted attend. But their attendance upon school

Enlisted men of good character, and belonging to batteries not stationed at the post where the Artillery School is established, are also permitted to enjoy the benefits of one year's course of instruction at the school. Such men, on their own application, are nominated by their battery commanders to their regimental commanders, on whose approval they are detached from their batteries, by orders from the head-quarters of the Army, and directed to report themselves in person to the commanding officer of the school. Of this last-named class of men twenty-two have undergone or are now undergoing instruction at the school.

The course of instruction for the non-commissioned officers is both practical and theoretical. The practical course is pursued *pari passu* with that of the commissioned officers, but is not carried to the same extent, being restricted to the scope of the necessary duties and requirements of non-commissioned officers of artillery, and to the average capacity of enlisted men of that grade in our Army.

The theoretical course of instruction for the non-commissioned officers embraces mathematics, history of the United States, geography, reading, and writing. The subject of mathematics includes the entire field of arithmetic, and, for the more advanced scholars, it is carried as far as equations of the second degree in algebra. The instruction in most of the branches is conducted as in the school for commissioned officers, by recitations at the blackboard, and by questions.

Since the commencement of the duties of the Artillery School one hundred and three enlisted men (chiefly non-commissioned officers) have gone through the entire course of practical and theoretical instruction for one year, and have been awarded by the staff of the school engraved certificates, signed by each of its members, setting forth that fact.

The following-named officers constitute the staff and instructors at the school at the present date, and, with the above-stated exceptions, have been thus on duty since its first establishment:

Commandant.—Colonel W. F. Barry, Second Artillery.

Superintendent of Theoretical Instruction.—Lieutenant-Colonel I. Roberts, Fourth Artillery.

Superintendent of Practical Instruction.—Major G. A. De Russy, Third Artillery.

Member of Staff.—Major T. G. Baylor, Ordnance Department.

Adjutant of School and Secretary of Staff.—First Lieutenant I. C. Breckinridge, Second Artillery.

Instructor in Mathematics, Ordnance, and Gunnery.—Captain R. Lodor, Fourth Artillery.

Instructor in Military, International, and Constitutional Law, and in Tactics.—Captain S. S. Elder, First Artillery.

Instructor in Mathematics and Military Engineering.—Captain S. N. Benjamin, Second Artillery.

Instructor in Mathematics and Military History.—Captain E. R. Warner, Third Artillery.

Instructor in Tactics.—Captain J. W. Piper, Fifth Artillery.

A library of books of reference, professional instruction and general reading, to the number of 2,050 volumes, belongs to the school, made up of duplicates from the libraries of the War Department and the Military Academy, and a bequest of Col. Archer.

A museum of field, siege, and sea-coast artillery; specimens of primers, fuses, and projectiles; different varieties of small arms of this and other countries; instruments for inspecting cannon and projectiles, has been commenced by the Superintendent, as a useful aid to the course of practical and theoretical instruction in the school. It now numbers over 4,000 articles.

The Artillery School has been organized and conducted thus far to the satisfaction of the Department, and favor, with this arm of the service, without any special pecuniary expense to the Government by the present Commandant, Col. William F. Barry—who closes his annual Report with the remarkable paragraph:—"No special appropriation (beyond the ordinary requirements of this Military Post) for the maintenance of this school are now needed, and none are required."

VIRGINIA MILITARY INSTITUTE AT LEXINGTON.

HISTORICAL NOTICE.

THE VIRGINIA MILITARY INSTITUTE at Lexington, was established in 1839, and was organized and conducted from the start on the plan of the Military Academy at West Point, by Col. Francis H. Smith, a graduate of that institution of the class of 1833, and professor there from 1834 to 1836.

The State makes an annual appropriation of $15,000 for its support, on the basis of which a certain number (usually 36) cadets are admitted without charge; in consideration of which they are required to teach in some school of the State for two years after graduation. In the selection of State cadets regard is had to their capacity to profit, and inability to pay the expenses of tuition and board, and an equal representation of each senatorial district. Any commissioned officer of the militia of the State can become a student for a period not exceeding ten months, and receive instruction in any or all departments of military science taught therein, without charge for tuition.

The course of instruction was from the start distinctly scientific, and since its return [from Richmond where it was removed after the destruction of its building and library, when Lexington was taken possession of by Gen. Hunter] in 1866, and its reorganization on its present basis of a general School of Applied Science, it has become even technic in reference to all the chief industries and natural resources of Virginia.

The origin and military character of the Institute are thus set forth by the Superintendent in an address to the Corps of Cadets, Sept. 10, 1866:

> Peculiar circumstances gave to this Institution its distinctive military character. Here the State had a deposit of arms, in an arsenal, which had been established for many years before the organization of the Institution, and the annuity which had been formerly given to the public guard by the State, was transferred to the Virginia Military Institute, as the basis of its support. Upon this foundation the Virginia Military Institute was established, and as the duty imposed upon the cadet was military, so military discipline and military instruction became an essential and distinctive feature in the education it supplied. Besides daily exercises in the school of the soldier, company, and battalion in *infantry*, and of the piece and battery in *artillery* tactics, minute instruction is

given in the class-room, upon all the theoretic branches of the military art, embracing, in addition to those enumerated, *ordnance* and *gunnery*, *military strategy* and *military history*, and the principles and practice of field and permanent fortifications.

It is not necessary that I should say any thing, at this time, to vindicate the completeness of the arrangements made in this institution for theoretical and practical military education. The sanguinary conflict which has just closed has fully tested its efficiency. *One-tenth* of the Confederate Armies was commanded by the élèves of this school, embracing three *major generals*, thirty *brigadier generals*, sixty *colonels*, fifty *lieutenant colonels*, thirty *majors*, one hundred and twenty-five *captains*, between two and three hundred *lieutenants*; and the terrible results of the battles, in numbering one hundred and twenty-five of these among the *killed*, and three hundred and fifty among the *wounded*, show that the élèves of this institution met the call of their country with an earnestness of devotion which places them in most honorable distinction for their heroic defense of what they believed to be right.*

We give the organization and course of instruction from the latest Circular, issued by the Superintendent.

Academic Staff.

Superintendent, and Professor of Mathematics and Moral Philosophy—General Francis H. Smith, A. M.

Professor of Latin, and English Literature—Col. John T. L. Preston, A. M.

Professor of Practical Engineering, Architecture, and Drawing—Col. Thomas H. Williamson.

Professor of Agriculture—Col. Wm. Gilham, A.M., (Philip St. George Cocke).†

Professor of Animal and Vegetable Physiology applied to Agriculture—Col. Robert L. Madison, M. D. (Mercer).‡

Commandant of Cadets, Instructor of Infantry, Cavalry, and Artillery Tactics, and Professor of Military History and Strategy—Col. Scott Ship.

Professor of Mathematics—Col. James W. Massie.

Professor of Natural and Experimental Philosophy—Col. William B. Blair, (Jackson).

Professor of Civil and Military Engineering and Applied Mechanics—General G. W. C. Lee.

Professor of Practical Astronomy, Geology, Descriptive and Physical Geography and Meteorology—Col. John M. Brooke.

Professor of Geology, Mineralogy, and Metallurgy—Col. Marshall McDonald.

Professor of General and Applied Chemistry—Col. M. B. Hardin.

Professor of Modern Languages—Col. Thomas M. Semmes.

Professor of Physics and Superintendent of Physical Survey of Virginia—Commodore M. E. Maury, LL D.

Professor of Fine Arts—Col. William D. Washington.

Assistant Professors.

Assistant in Physics—Col. W. E. Cutshaw.

Assistant Professor of French Language—Capt. O. C. Henderson.

Assistant Prof. of Chemistry, Mineralogy, and Geology—Capt. J. H. Morrison.

Assistant Professor of English, and Drawing—Lieut. James H. Waddell.

Assistant Professor of Latin—Capt. Wm. M. Patton.

Assistant Professor of Mathematics—Lieut. R. H. Cousins.

Assistant Prof. of Geography, Drawing and Tactics—Capt. Wm. B. Pritchard.

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* Although no one institution contributed so large a number of officers to the Confederate Armies, the Military Institute at Frankfort, Ky., the Cadet Corps connected with the arsenals in Norfolk, Richmond, and other Southern cities, and the State Military Institutes in Alabama and Louisiana, furnished a large number of subordinate officers, which facilitated the early organization of the armed forces of the South.

† Gen. Cocke, in 1866, gave $20,000 to endow this professorship.

‡ Dr. Mercer of Louisiana, made a donation of $11,800 to this chair.

Assistant Professor of Mineralogy, Latin, and Tactics—Capt. W. H. Butler.
Assistant Professor of Natural Philosophy and Latin—Lieut. R. E. Nelson.
Assistant Professor of Mathematics—Lieut. W. C. Powell.
Assistant Professor of Latin—Lieut. James E. Heath.
Assistant Professor of Drawing—Lieut. M. Palmer.
Assistant Professor of Tactics—Capt. W. Denham.
Assistant Professor of Mathematics, &c.,—Capt. G. K. Macon.

Military Staff.

Surgeon—Col. R. L. Madison,
Ass't Surgeon—H. T. Barton, M.D.
Act'g Treasurer—Capt. W. A. Deas.
Com. and Steward—Capt. J. T. Gibbs.
Adjutant—Capt. F. H. Smith, Jr.

III. SCHOOLS AND COURSES OF INSTRUCTION.

Academic Schools.

First Year—Fourth Class.—Arithmetic (Smith and Duke's); Algebra (Smith's); Geometry (Smith's Legendre); Plane and Spherical Trigonometry (Smith's); French (Levizac and La Porte's Grammar, Gil Blas, Pinney No. 5, Fasquelle); Geography (Maury); Pencil and Pen Drawing: Composition and Declamation: Latin (Cæsar, Virgil, Cicero, Horace).

Second Year—Third Class.—Descriptive Geometry (Smith's); Analytical Geometry (Smith's Biot): Shades, Shadows and Perspective (Lectures); Differential and Integral Calculus (Courtenay and La Croix); Surveying (Field Exercise); French (Noel and Chapsal, Laporte and Collot, French Classics); Latin (Cæsar, Virgil, Livy, and Cicero); Mechanical Drawing, Composition, and Declamation; Physics (Ganot).

Third Year—Second Class.—Natural Philosophy (Bartlett and Bouchalat's Mechanics, Bartlett's Optics and Acoustics, Bartlett and Gummere's Astronomy); Latin (Terence and Horace); Chemistry (Fownes, and Practical Instruction in Laboratory); Physical Geography (Somerville); Infantry Tactics.

Fourth Year—First Class.—Civil Engineering (Mahan, Rankine, and Lectures); Military Engineering (Laisne, aide memoire); Architecture (Lectures and Drawing); Human Physiology (Kirke); Military History and Strategy (Jomini); Rhetoric (Blair); Intellectual Philosophy (Wayland); Logic (Whately); Moral Philosophy (Paley and Butler); Constitution of United States (Kent); Mineralogy (Dana); Geology (Gray and Adams); Infantry tactics (Hardee); Artillery and Ordnance (Benton and United States Tactics).

Special School of Applied Science.

The Special School of Applied Science, in the Virginia Military Institute, is arranged in seven *Courses*, which may be prosecuted separately or in combination: 1. Architecture; 2. Civil Engineering; 3. Machines; 4. Mining; 5. Analytical and Applied Chemistry; 6. Metallurgy; 7. Agriculture.

I. ARCHITECTURE.—1. *Drawing*—Including pen and colored topography, mechanical lettering and coloring. 2. *Materials*—Stone, brick, wood, mortar, mastics, glue, paints, &c. 3. *Masonry*—Retaining walls, walls of inclosure, edifices, ornaments, arches, stone-cutting. 4. *Carpentry*—Timbers, framing, beams, joints, floors, partitions, roofs, domes, centres, windows, stairways. 5. *Foundations*—In water, on land. 6. *Classical Architecture*—Orders, Egypt, Rome, Greece. 7. *Design.* 8. *Romanesque.* 9. *Gothic.*

II. CIVIL ENGINEERING.—1. *Drawing*—Pen and colored topography, mechanical, etc. 2. *Materials*—Same as in Course of Architecture. 4. *Carpentry*—Same as in Course of Architecture. 5. *Foundation*—Same as in Course of Architecture. 6. *Surveying*—Running lines and curves for common and railroads, canals, leveling profiles, estimates, &c. 7. *Bridges*—Stone, Wooden, Iron. 8. *Common Roads.* 9. *Railroads.* 10. *Tunnels.* 11. *Locomotives.* 12. *Canals.* 13. Rivers, Docks, Harbors. 14. *Mining.*

III.—MACHINES—GENERAL PRINCIPLES OF MACHINES.—*Muscular Power*—Power of men, Power of horses, etc. *Water Power and Wind Power*—Sources of water for Power. Water-Power Engines in general. Water-Bucket Engines. Water-Pressure Engines. Vertical Water-wheels. Turbines. Fluid-on-Fluid, Impulse-Engines, Windmills. *Steam and other Heat Engines*—Relations of the Phenomena of Heat. Combustion and Fuel. Principles of Thermodynamics. Furnaces and Boilers. Steam-Engines. Electro-Magnetic Engines.

IV.—MINING.—*Course of Lectures on Mining*—Embracing prospecting, breaking ground, boring, blasting, tubing, sinking shafts, driving tunnels, ventilating and lighting; the different methods of working mines; mining machinery and motors, engines, horses, pumps, wagons, drums, etc.; dressing and concentration of Minerals, crushers, stamps, washers, amalgamators, etc.; quarrying and open workings; details of mining in this country and statistics.

Drawing.—Geological maps and sections; coloring the same; and plans and sections of mines, quarries and other open workings; mining machinery and implements; plans of ventilation.

V.—METALLURGY.—*Geology* of Coal, Iron, Copper, Lead, Zinc, Salt, etc.

Metallurgy—Review of more important metals and their ores; Metallurgical implements, structures, and processes, crucibles, furnaces, blowing machines; details of the smelting and manufacture of Iron, Copper, Lead, Silver, Gold, etc.

Drawing—Coloring of maps and sections; drawing of furnaces, refiners, cokeing ovens; Metallurgical apparatus.

VI.—ANALYTICAL AND APPLIED CHEMISTRY.—In the Laboratory facilities are afforded for prosecuting the various branches of practical Chemistry. Each student will work independently of the others, receiving personal guidance and instruction from the Professors. In the last year the course may be varied according to the special object the student has in view.

The following is an outline of *Systematic Course for Students in Mining and Metallurgy:* 1. Qualitative Analysis. 2. Quantitative Analysis; (*a.*) Analysis of substances of known composition; (*b.*) Analysis of ores, slags, etc. 3. Assayers—Ores of Lead, Silver, Gold, Iron, Copper, etc.

VII.—AGRICULTURE.—1. *Chemistry*—General and applied to Agriculture. 2. *Mineralogy.* 3. *Histology.* 4. *Vegetable Physiology.* 5. *Agricultural Botany.* 6. *Zöology.* 7. *Civil Engineering*—Applied to farm bridges, roads, drainage. 8. *Rural Architecture.* 9. *Drawing.* 10. *Anatomy and Physiology of Sub-Kingdom*—Vertebrata. 11. *Human Physiology.* 12. *Hygiene and Dietetics.* 13. *General Botany.* 14. *Animal Toxicology.* 15. *Veterinary Practice.* 16. *General Principles. Chemistry, Geology, Mechanics, and Domestic Economy.*

IV. SYSTEM OF INSTRUCTION AND GOVERNMENT.

The System of Instruction and Government is founded upon that of the United States Military Academy at West Point.

As soon as a young man enters the Institution, it assumes over him an entire control, and not only directs his moral and intellectual education, but provides every thing required for his personal wants or comfort. A Cadet, may, if his parents desire it, remain in charge of the Institution for the entire term of four years, as the system of government keeps it always in operation. The months of July and August, in each year, are devoted exclusively to Military Exercises. Furloughs are granted to those who may desire it, in turn, during this period. The Cadets are lodged and boarded in the Institution, their Clothing, Books, and other supplies, being provided by the Quartermaster of the Institute, *at cost.* The sick are under the special care of the Surgeon, with Hospital and other facilities for nursing.

The energy, system, subordination, and self-reliance which the military government of the Institute cultivates, give a practical character to the education which it supplies. The high reputation which its Alumni have established for the School is the evidence of its value.

V. DEGREES.

A Diploma, signed by the Governor of Virginia and by the Visitors and Faculty, is awarded to all Cadets who may pass approved examinations on all the studies of the Academic School, with the title of "*Graduate of the Virginia Military Institute.*" A like Diploma is awarded to all who may complete the course prescribed for either of the *Special Schools of Applied Science*, with the title of "*Graduate*" in such school.

MILITARY TACTICS IN STATE SCHOOLS OF SCIENCE.

INTRODUCTION.

In the Act of Congress (July, 1862) making grants of public lands to the several States for the endowment of State Schools of Agriculture and the Mechanic Arts, it is provided that military tactics shall be included in their schemes of instruction; and by an Act of March, 1869, the President is authorized to detail an army officer to each institution, to instruct in such tactics. On these two provisions, with further coöperative legislation, State and National, a system of military instruction can be gradually developed, which, for economy, efficiency, and uniformity, will meet all the conditions of a national armament, and compare favorably, as against foreign invasion or domestic insurrection, with that of Switzerland or Prussia. Thus far the subject has received only slight attention, and the connection of these departments with the State militia, or volunteer companies, or the appointment of cadets to our national military schools or to vacancies in the army, has not been discussed. We state briefly what is attempted in a few of these schools:

CORNELL UNIVERSITY AT ITHACA, N. Y.

In Cornell University (to which the United States Land Grant of 989,000 acres of land was assigned by the Legislature of New York, and which Mr. Ezra Cornell has endowed with the sum of $525,000, securely invested and drawing interest at seven per cent.), the military tactics is incorporated into the general organization of the students, and made the basis of the College of Military Science. (1.) Attendance on military exercises is made obligatory on every able-bodied student; and for this purpose the whole number is organized into a military corps—arms and equipments being furnished by the State—under the Military Professor, who has the title of Commandant, and is aided in his duties by a staff, selected in view of military aptitude, general deportment, and proficiency in studies. (2.) All students are required to observe and conform to such regulations as may, from time to time, be promulgated by the Commandant; provide themselves with the university cap for ordinary wear, and with the blouse or fatigue cap for parade; and are held to strict accountability for the proper use of the arms and other property issued to them. (3.) The practical instruction for all students embraces infantry and artillery tactics, and special exercises with the sabre, sword, and bayonet; and (4.) for those who elect, a military course consisting of (a.) *Military Engineering*, (b.) *the Art of War*, and (c.) *Military Law*. At the close of each year, after the graduating exercises, the Faculty will recommend to the Governor of the State a list (not exceeding one in every ten of such graduates), distinguished for general proficiency in any one of the complete University courses, special attainments in military science, expertness in military exercises, and of good moral character and of sound health, with a request to transmit the same to the President of the United States for his consideration in making appointments for positions in which such qualifications are demanded.

STATE AGRICULTURAL COLLEGE AT AMHERST, MASS.

The Military features of the Course of Study were originally administered by Capt. Henry E. Alvord, of the United States Army, who had been specially charged with this instruction in the Military Institute and University at Norwich, Vt. The specifications are:

FRESHMAN YEAR.—*First Term*—Military Drill; Infantry Tactics; School of the Soldier; *Second Term*—Do.; and School of the Company and Manual of Arms. *Third Term*—Do.; and School of the Company and Battalion.

SOPHOMORE YEAR.—*First Term*—Military Drill; Infantry Tactics; Manual of the Bayonet and Instruction in duty as Skirmishers. *Second Term*—Do.; and Bayonet Exercise. *Third Term*—Do.; and Skirmish and Battalion Drill; Guard Duty; and Forms of Parade and Review.

JUNIOR YEAR.—*Third Term*—Military Drill; Artillery Tactics; School of the Piece. *Second Term*—Do.; and Artillery and Cavalry Tactics; Manual of the Sabre; School of the Trooper dismounted; Instruction in Heavy Artillery Tactics and Gunnery. *Third Term*—Do.; School of the Section; Infantry Tactics; Battalion Drill.

SENIOR YEAR.—*First Term*—Military Drill and Cavalry, Artillery and Infantry Tactics; Duty as Drill Masters and Officers in Infantry and Artillery Drill; Theoretical Instruction in Cavalry Tactics, and the organization and uses of Cavalry. *Second Term*—Military Drill and Cavalry Tactics; Sabre Exercise. *Third Term*—Military Drill; Target Practice; Sword Play: and General Drill.

The Committee of Examination for 1870 report as follows:

Your Committee can not refrain from alluding to the interest which all the young men take in the drills, the evident beneficial effect upon their bearing and health, and the value of the accomplished soldiers and officers thus made for the future service of the Commonwealth, in the event of another call to send forth her sons for herself or the nation. Were no other result accomplished by this institution, the money of the Commonwealth could be no more judiciously expended, and yet this is but an incident to the regular course.

The Principal, Col. Clark, writes: "We have a fine hall for in-door exercise, and are furnished by the State with cannon, breech-loading rifles, sabres, &c., and consider our course a decided success. Our graduates are able to act as officers in infantry and artillery regiments, and I believe our system, as we are organized and taught by a West Point graduate, a most excellent and economical substitute for the ordinary militia system."

LOUISIANA STATE UNIVERSITY.

THE LOUISIANA STATE UNIVERSITY was founded as "a State Seminary of Learning and Military Academy" by the Legislature in 1855, near Alexandria, in the Parish of Rapides, on endowments of land made by the General Government at different times, from 1806 to 1827, for establishing "a Seminary of Learning." It was opened for the reception of students, January 2, 1860, and organized on a military basis, under the superintendence of Col. W. T. Sherman (now General-in-Chief, United States Army), who resigned his position, February 2, 1861, on the hostile demonstration of the State of Louisiana against the authority of the United States. The instruction of the institution continued under Col. W. E. M. Linfield, till April 22, 1863, when its operations were closed by the disasters of the War, to be reopened on the first of October, 1865, only to be closed again by the utter destruction of its extensive buildings by fire on the 15th of October, 1869. On the 1st of November following, its exercises were resumed at Baton Rouge, in the extensive building of the Asylum for the Deaf and Dumb, which was placed temporarily for the occupancy of the classes, and a portion of the students. The session of 1871, under the superintendence of Col. D. F. Boyd, closed with 217 matriculated Cadets, of whom 128 were admitted on the State Cadet warrants.

The Law of March 16, 1870, relative to the appointment of Beneficiary Cadets, provides that each parish shall delegate two, and the city of New Orleans, by its Board of School Directors, twenty cadets, to be selected from the members of the highest class in the public school of such parishes and city, distinguished for their scholarship and good conduct, and whose parents may not be able to provide for their necessary expenses for tuition and maintenance at the State Seminary; and at the expiration of their residence at the University which can not exceed four years, these Beneficiary Cadets are required to teach school within the State for two years, on penalty of default to the amount of the sum paid by the State.

WABASH COLLEGE, CRAWFORDSVILLE, INDIANA.

By arrangement with the Trustees of Wabash College, the Legislature of Indiana has authorized the County Commissioners of each county to appoint one person to receive the advantages of the institution for five years, free of tuition, in consideration of a portion of the State's quota of the United States Land Grant, for agricultural and mechanical Arts Colleges; and to meet the requirements of the law of Congress, the college has established a Scientific Course, and under the superintendence of a Professor of Military Science, daily instruction in Tactics and Gymnastics is given to the students by divisions with a weekly drill of all, as a battalion. The *College Courant* thus notices the new hall for Gymnastics and Tactics:

> The physical culture of this institution is under the charge of the Chair of Military Science, and for the purpose of this culture a building has been erected which is more comprehensive than usual in gymnasiums, and is quite unique in some particulars. Work was commenced last August, and in fifty days the roof was receiving the slate. The building presents the form of a cross, of equal members, and the ground service of seven thousand five hundred feet, is thus divided: A marching and running course, of three hundred feet, twelve feet wide, and seventeen feet high; a gymnasium sixty feet by twenty-six, and twenty-four feet high, ventilated and lighted by a central tower fifty feet in height;' an armory and gun-room, for care of small arms and artillery; and a room for fencing, boxing, quoits and other manly exercises. In the four transepts above, are topographical room, model room; reading room, for maps, charts, etc.. and bath rooms. All these, through interior glass fronts, furnish a full view of the Exercise Hall, within and below. The small-arms used. are the "light, cadet, breech-loading rifle," similar to those last issued to the Military Academy at West Point, and were manufactured by the United States at the Springfield Arsenal for the use of students receiving their instruction.

CALIFORNIA STATE UNIVERSITY.

THE UNIVERSITY OF THE STATE OF CALIFORNIA has a Military Department to meet the requirements of the Act of Congress, under the directions (1871) of Professor (General) Welcker and Assistant Professor F. Soulé, graduates of the West Point Academy. The Adjutant General (Thos. N. Cazneau) of the State in his Report to the Governor, dated September 1, 1870, remarks:

> The gratifying success with which the military department of the State University has been conducted is worthy of special notice, and I am happy to announce that perfect discipline and a high state of proficiency pervade the department of military study at that institution. The cadets were incorporated with the National Guard of the State by Act of the last legislature, and have been formed into four companies of infantry, and instructed most fully and perfectly in that branch of military service. A personal inspection of the battalion enables me to speak of its condition with confidence. I find both officers and cadets thoroughly up to the requirements of the infantry soldier, perfect in carriage, most proficient in the use of arms, steady in marching and all company formations, and, in the manœuvres of the battalion, challenging an admiration worthy to be elicited by a veteran soldiery. Their *ensemble* is striking, and the effect of a thorough military training upon the young gentlemen of the University is largely manifested in their erect and graceful personal appearance and movements, apparent not only when upon duty but in their ordinary walks of every-day occupation; while the gentlemanly and high-toned courtesy that pervades the whole body may not unjustly be attributed, in a large degree, to their military studies and military habits. The young officers evince excellent characteristics of command, great dignity of deportment and admirable ability in imparting instruction. I can not too highly commend to your attention the whole military condition of the cadets of the State University, and to ask for them your fostering care and encouragement, and that of the Legislature.

There are several colleges in California in which military instruction is introduced; prominent among them is St. Augustine College at Benicia, and McClure's Academy at Oakland. At each there are about 100 boys, fully equipped and drilled as infantry soldiers.

INDIVIDUAL AND CORPORATE INSTITUTIONS
FOR
MILITARY INSTRUCTION.

ALDEN PARTRIDGE.

ALDEN PARTRIDGE, Captain in the United States Corps of Engineers, Professor and Superintendent of the Military Academy at West Point, and the Founder of a class of institutions in which the military element is recognized and provided for as an essential part of the training of the American citizen, was born at Norwich in Vermont, on the 12th of January, 1785. His father was a farmer, in independent circumstances, served in the war of the Revolution, and took part in the capture of Burgoyne and his army at Saratoga. He brought up his son in the New England fashion, at such district school as the times and the country afforded in the winter, and at all sorts of work about the house and on the farm at other seasons, until he was sixteen years of age, when, being of studious turn, and fond of reading, he was allowed to fit for college, and entered Dartmouth in August, 1802. We have no knowledge of his studies in college, but it is presumed that his predilections were for the mathematics, and from the lateness with which he commenced his Latin and his subsequent declarations, his aversion was for the languages. Before completing his collegiate course he received the appointment of cadet[*] in the regiment of artillerists in the United States service, with orders to repair to West Point, and report himself to the commanding officer of the Military Academy at that place.

The Military Academy at the time Cadet Partridge arrived at West Point was very inadequately equipped with the men and material aids of instruction, although the two teachers appointed were abundantly capable in their respective departments. Jared Mansfield, especially, the teacher of natural philosophy, had won such reputation in mathematical studies that he received his commission as a captain of engineers from Mr. Jefferson for the very purpose of becoming a teacher at West Point, which he did by appointment in 1802, although in reality he did not perform his duties regularly, and then only for one year, having been, in 1808, appointed by President Jefferson to the responsible post of Surveyor-General of the North-western territory. Such instruction as was given was received by Cadet Partridge in 1806, and in July of that year, he was transferred to the Corps of Engineers, and in October, commissioned as first lieutenant. In November, 1806, he was appointed assistant professor of mathematics, Fedinand R. Hassler, a little later, having been made Professor in place of Capt. Barron, retired. From Prof. Hassler, he received great help in his mathematical studies, as he afterwards repeatedly acknowledged. In 1808, Prof. Partridge was called to act in place of the Superintendent in the absence of Col. Williams, and continued to do so, with brief intervals, until January, 1815, when he was appointed to the office which he filled till March, 1816. In 1809, Mr. Hassler resigned the professorship of mathematics, and the instruction before given by him devolved on his assistant, Mr. Partridge. In 1810, he succeeded, after repeated applications to the Secretary of War, in obtaining two field pieces, for practical instruction of the Cadets as Artillerists.

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[*] A *Cadet* in the military organization of the Army denoted a junior officer between the grade of lieutenant and sergeant, and was introduced from the French service. An Act of Congress, passed May 7th, 1794, provided for a Corps of Artillerists and Engineers, to consist of four battalions, to each of which eight *cadets* were to be attached, and authorized the Secretary of War to procure at the public expense the necessary books, instruments and apparatus for the use and benefit of said corps. In 1798, an additional regiment of Artillerists and Engineers was raised, increasing the number of Cadets to fifty-six. In 1798, the President was authorized to appoint four teachers of the Arts and Sciences necessary to Artillerists and Engineers. No appointment was made till 1801, and in 1802, the Military Academy was established at West Point, where the corps of Engineers was directed to repair with fifty Cadets, and the Senior Officer of the Corps was constituted Superintendent. Col. Williams was then Senior Officer of Engineers, and became, *ex-officio*, Superintendent, and continued such until 1812.

In 1812, the Academy was re-organized, and was made to consist of the Corps of Engineers and the following Professors, in addition to the teachers of the French language and drawing, viz.: "one professor of natural and experimental philosophy; one professor of mathematics; and one professor of the art of engineering; each professor to have an assistant taken from the most prominent of the Officers or Cadets." The number of Cadets was increased to two hundred and fifty, and were directed to be arranged into companies of non-commissioned officers and privates, according to the directions of the commandant of Engineers, and be officered from that corps, "for the purposes of military instruction, in all the duties of a private, non-commissioned officer, and officer, and to be encamped at least three months of each year, and taught all the duties incident to a regular camp." The age of admission was fixed, the minimum at fourteen, and maximum at twenty-one, and preliminary knowledge to be well versed in reading, writing, and arithmetic. It was further provided that any Cadet who shall receive a regular degree from the Academical Staff, after going through all the classes, shall be considered among the candidates for a commission in any corps, according to the duties he may be judged competent to perform. The sum of $25,000 was appropriated towards the buildings, library, implements, &c. On this broad basis the Academy was progressively enlarged to its present capabilities of usefulness.

Under the new arrangement of 1812, Mr. Partridge was appointed professor of mathematics, with the pay and emoluments of a major, which appointment was soon after, at the request of the Secretary of War, exchanged for that of professor of engineering, it being found more difficult to fill the latter post than the former. The duties of this professorship he continued to discharge from September 1, 1813, till December 31, 1816.

In 1808, Capt. Partridge was ordered by Col. Williams to take charge of the internal direction and control of the Military Academy as Superintendent, which duties he discharged until January 3, 1815, when, by regulations of that date, he was made the permanent Superintendent, which post he held till November 25th, 1816, and was finally relieved on the 13th of January, 1817.

By the regulation of January 3, 1815, the commandant of the Corps of Engineers was constituted *Inspector* of the Academy, and made responsible for instruction, and to report to the Department of War. Out of this appointment, and the instructions relating thereto, grew a difference of opinion, which resulted in the final withdrawal of Capt. Partridge from the institution, the resignation of his commission in the military service of the United States, and his subsequent devotion to the dissemination by lectures and personal efforts of the views which he had formed of the education required by the American citizen, and the establishment of institutions in which these views could be carried out.

After resigning his commission in the military service of the United States, Capt. Partridge was engaged, in the summer of 1818, as military instructor to a volunteer corps, and in giving a course of lectures on fortifications and other branches of military science to a class of officers and citizens in the city of New York. The views which he then presented on the best means of national defense were in advance of the "piping times of peace" in 1818, but have been since demanded to be eminently sound and practical by the terrible experience of 1861—1862.

His chief reliance for national defense was in the *military habits* of the great body of the American people—organized into suitable militia departments corresponding in the main to the limits of the several states, officered by men of the right capacity, scientific education, and military training. The officers were required to assemble annually at stated periods, either in camps or rendezvous, at some central point in the department, to receive instruction from a few competent teachers of the military art. We give the plan in his own language as published at the time.

I. Let the United States be divided into military departments, say thirty in number; each of those departments to be wholly comprised within the same state, whenever this can be done.

II. To each of those departments let there be attached a military instructor, (under the authority of the United States,) who should receive the pay and emoluments of a colonel of infantry, and have the brevet-rank of a brigadier-general. These instructors to be gentlemen of established character and reputation, and who have received a regular scientific military education.

III. Let the officers of each brigade of militia in the United States be required to assemble annually at stated periods, either in camp or rendezvous, at some central point in the brigade, there to remain six days, for the purpose of military instruction. Let each instructor attend in succession at the several camps or places of rendezvous in his department, and devote himself assiduously to the instruction of the officers there assembled. One portion of the day might be devoted to practical drills, and field evolutions—also to the turning off, mounting, and relieving guards and sentinels, while the remainder could be most usefully employed in explaining and illustrating the principles of tactics generally, of artillery, of permanent and field fortification, the duties of troops in camp and in garrison, and such other branches as time and circumstances might permit, by means of familiar explanatory lectures.

IV. Let each officer receive from the government a reasonable allowance for his expenses while attending the instruction, and also while going to, and returning from, the camp or rendezvous.

Some of the principal advantages that would result from the adoption of the foregoing plan, I conceive would be as follows, viz.:—

1. The same system of tactics and discipline would pervade the whole mass of the militia—the instructors being imperatively required to adhere to one system. This would be a very important advantage.

2. By this means the country, in the course of a few years, would be furnished with a well organized military force, of at least one million of men, composed of the best materials in the world for soldiers; the whole of which, the officers having been regularly and correctly instructed, might be rendered, in the course of a few weeks, after being called into service, perfectly competent to the efficient discharge of all the duties of the field. This assertion is not founded upon conjecture. An experience of nearly fifteen years in military instruction, has convinced me, that any of our regiments of militia, in their present state of discipline, if brought into the field and placed under competent officers, could, by three weeks instruction, be prepared for discharging all the duties of regular troops. The instruction, then, in time of peace, of the officers, becomes an object of great importance;—that of the privates is of secondary consideration. There is no difficulty in making soldiers, when officers understand their duty, and are disposed to perform it.

It may perhaps be objected to the foregoing plan, that the time proposed for the officers to remain in camp or rendezvous, is too limited to admit of their deriving much advantage therefrom. In answer to this I will observe, that a due share of experience in this species of instruction, has fully convinced me, that they would acquire more correct military information in six days, under a competent and systematic instructor, than they usually acquire under the present system, during the whole period from eighteen to forty-five years of age; and that, after attending two or three similar courses, the great body of them would be perfectly competent to the correct, efficient, and useful discharge of all the duties of the field. From the best calculation I have been able to make, I feel confident, that the whole necessary expense of carrying this plan into full and effective operation, would not exceed six hundred thousand dollars—it would probably fall short of that sum. Whether the expense, then, is to be considered as disproportionate to the object in view, and therefore to constitute a barrier to its accomplishment, must be decided by the sound discretion of the representatives of the people. It appears to me, however, to bear no greater ratio to it, than does a grain of sand to the globe we inhabit. The cultivation of military science must also be viewed as of the first importance in a system of military defense for our country. The plan already detailed, is calculated for the general dissemination of practical military information throughout the community, but is not adapted to the investigation of principles. This can only be done at seminaries, where it constitutes a branch of regular attention and study; and where theory and practice can, in due proportion, be combined. At those seminaries would be formed our military instructors, our engineers, and our generals; and from those, as from so many foci, would all the improvements in the military art be diffused throughout the country.

In the lectures delivered in 1818, Capt. Partridge, in view of the inevitable disintegration by frost and moisture, and the improvements in the science of attack, anticipated the insufficiency of permanent fortifications—of works of masonry, no matter how expensively or strongly constructed—to the defense of our principal harbors against the attacks of a foreign foe; his reliance was on the general diffusion of military science and training amongst the militia, on an efficient navy, and the following plan of marine defense.

I. At the most important and exposed points on our seaboard, let one or two principal works of the most permanent kind be erected: these works to be kept in perfect repair, to be plentifully supplied with all the munitions of war, and the guns and carriages well secured from the weather by means of pent houses.

II. In the vicinity of all the most exposed and vulnerable points on the seaboard, let spacious and permanent arsenals be constructed, in which, let there be deposited ample supplies of cannon, mortars, gun carriages, materials for platforms, and other munitions of war, where they would remain perfectly safe from the weather.

III. In case of war or threatened invasion, let temporary works, either of earth, or of wood, be constructed at all the most vulnerable points, which could be readily furnished with cannon, gun carriages, platforms, and all the necessary implements and munitions from the arsenals in their vicinity.

IV. As soon as peace is restored, these works should be dismantled, and all their apparatus returned to the arsenals from whence it was taken. In case of future emergencies, they could be restored, or others of the same descriptions constructed in their places, which could be supplied from the arsenals in the manner above stated. The efficacy in marine defense, of works of the above description, I presume will not be doubted by any scientific military man. Should any one, however, be disposed to doubt it, I would beg leave to refer him to the defense of Fort Moultrie, in the harbor of Charleston, South Carolina, when attacked by the British shipping, during the Revolutionary war, and also to the defense made by the small fort at Stonington, Connecticut, when attacked in a similar manner during the last war.

By adopting this system, I think the following advantages would result:—

1. A more secure defense would be obtained. By knowing the description of force we had to encounter, we should be enabled to construct our temporary works in a manner the best calculated to repel it; and as the gun carriages, platforms, and implements, when taken from the arsenals, would be sound and in perfect order, we might reasonably calculate these works would make a more

vigorous resistance than permanent ones, which, with their apparatus, are in a state of partial dilapidation and decay.

2. The system would be much less expensive than the one by permanent fortification. Those temporary works could ordinarily be constructed by the troops with very little, if any, additional expense; but in case of pressing emergency, the zeal and patriotism of the people might be relied upon with safety, to supply any amount of labor that might be necessary, as was the case at New York in 1814. As it is not proposed they should be retained as military stations in time of peace, the expense of keeping them in repair would be nothing.

In the early part of 1819, Capt. Partridge was engaged in the exploring survey of the North Eastern boundary, under the fifth article of the treaty of Ghent. While on this survey he determined from barometrical and thermometrical observations of the altitudes of the Highlands dividing the rivers which flow northerly into the St. Lawrence, from those which flow southerly into the Atlantic ocean; he also made a profile of the country between several points on the St. Lawrence, and corresponding position in the state of Maine.

In 1820, Capt. Partridge resigned his position in this survey, for the purpose of carrying into practical effect a plan of education, which had occupied much of his attention since 1810, and which in its main features was, doubtless, suggested by his experience at Hanover, and West Point, and was calculated to supply certain deficiencies which he and others had already noticed in our American colleges and higher seminaries of learning. His views both of the deficiencies and their remedies were set forth in a lecture delivered at this time, which was subsequently printed. After defining "education in its most perfect state to be the preparing a youth in the best possible manner for the correct discharge of the duties of any station in which he may be placed," in this lecture he proceeds to characterize the existing plan of instruction.

1. It is not sufficiently practical, nor properly adapted to the various duties an American citizen may be called upon to discharge. Those of our youth who are destined for a liberal education, as it is called, are usually put, at an early age, to the study of the Latin and Greek languages, combining therewith a very slight attention to their own language, the elements of arithmetic, &c.; and after having devoted several years in this way, they are prepared to become members of a college or university.

Here they spend four years for the purpose of acquiring a knowledge of the higher branches of learning; after which, they receive their diplomas, and are supposed to be prepared to enter on the duties of active life. But, I would ask, is this actually the case? Are they prepared in the best possible manner to discharge correctly the duties of any station in which fortune or inclination may place them? Have they been instructed in the science of government generally, and more especially in the principles of our excellent Constitution, and thereby prepared to sit in the legislative councils of the nation? Has their attention been sufficiently directed to those great and important branches of national industry and sources of national wealth—agriculture, commerce, and manufactures? Have they been taught to examine the policy of other nations, and the effect of that policy on the prosperity of their own country? Are they prepared to discharge the duties of civil or military engineers, or to endure fatigue, or to become the defenders of their country's rights, and the avengers of her wrongs, either in the ranks or at the head of her armies? It appears to me not; and if not, then, agreeably to the standard established, their education is so far defective.

2. Another defect in the present system, is, the entire neglect, in all our principal seminaries, of physical education, or the due cultivation and improvement of the physical powers of the students.

The great importance and even absolute necessity of a regular and systematic course of exercise for the preservation of health, and confirming and rendering vigorous the constitution, I presume, must be evident to the most superficial observer. It is for want of this, that so many of our most promising youths lose their health by the time they are prepared to enter on the grand theatre of active and useful life, and either prematurely die, or linger out a comparatively useless and miserable existence. That the health of the closest applicant may be preserved, when he is subjected to a regular and systematic course of exercises, I know, from practical experience; and I have no hesitation in asserting, that in nine cases out of ten, it is just as easy for a youth, however hard he may study, to attain the age of manhood, with a firm and vigorous constitution, capable of enduring exposure, hunger and fatigue, as it is to grow up puny and debilitated, incapable of either bodily or mental exertion.

3. A third defect in our system is, the amount of idle time allowed the students; that portion of the day during which they are actually engaged in study and recitations, under the eye of their instructors, comprises but a small portion of the whole; during the remainder, those that are disposed to study, will improve at their rooms, while those who are not so disposed, will not only not improve, but will be very likely to engage in practices injurious to their constitutions and destructive to their morals. If this vacant time could be employed in duties and exercises, which, while they amuse and improve the mind, would at the same time invigorate the body and confirm the constitution, it would certainly be a great point gained. That this may be done, I shall attempt in the course of these observations, to show.

4. A fourth defect is, the allowing to students, especially to those of the wealthier class, too much money, thereby inducing habits of dissipation and extravagance, highly injurious to themselves, and also to the seminaries of which they are members. I have no hesitation in asserting, that far the greater portion of the irregularities and disorderly proceedings amongst the students of our seminaries, may be traced to this fatal cause. Collect together at any seminary, a large number of youths, of the ages they generally are at our institutions, furnish them with money, and allow them a portion of idle time, and it may be viewed as a miracle, if a large portion of them do not become corrupt in morals, and instead of going forth into the world to become ornaments in society, they rather are prepared to become nuisances to the same. There is in this respect, an immense responsibility resting on parents and guardians, as well as on all others having the care and instruction of youth, of which it appears to me they are not sufficiently aware.

When youths are sent to a seminary, it is presumed they are sent for the purpose of learning something that is useful, and not to acquire bad habits, or to spend money; they should consequently be furnished with every thing necessary for their comfort, convenience and improvement, but money should in no instance be put into their hands. So certainly as they have it, just so certainly will they spend it, and this will, in nine cases out of ten, be done in a manner seriously to injure them, without any corresponding advantage. It frequently draws them into vicious and dissolute company, and induces habits of immorality and vice, which ultimately prove their ruin. The over-weening indulgence of parents, has been the cause of the destruction of the morals and future usefulness of many a promising youth. They may eventually discover their error, but alas, it is often too late to correct it. Much better does that person discharge the duties of a real friend to the thoughtless, unwary youth, who withholds from him the means of indulging in dissipated and vicious courses.

5. A fifth defect is the requiring all the students to pursue the same course of studies.

All youth have not the same inclinations, nor the same capacities; one may possess a particular inclination and capacity for the study of the classics, but not for the mathematics and other branches of science; with another it may be the reverse. Now it will be in vain to attempt making a mathematician of the former, or a linguist of the latter. Consequently, all the time that is devoted in this manner, will be lost, or something worse than lost. Every youth, who has any capacity or inclination for the acquirement of knowledge, will have some favorite studies, in which he will be likely to excel.. It is certainly then much better that he should be permitted to pursue those, than, that by being forced to attend to others for which he has an aversion, and in which he will never excel, or ever make common proficiency, he should finally acquire a dislike to all study. The celebrated Pascal, is a striking instance of the absurdity and folly of attempting to force a youth to attend to branches of study, for which he has an utter aversion, to the exclusion of those for which he may possess a particular attachment. Had the father of this eminent man persisted in his absurd and foolish course, France would never have seen him, what he subsequently became, one of her brightest ornaments.

6. A sixth defect is the prescribing the length of time for completing, as it is termed, a course of education. By these means, the good scholar is placed nearly on a level with the sluggard, for whatever may be his exertions, he can gain nothing in respect to time, and the latter has, in consequence of this, less stimulus for exertion. If any thing will induce the indolent student to exert himself, it is the desire to prevent others getting ahead of him. It would be much better to allow each one to progress as rapidly as possible, with a thorough understanding of the subject.

Having stated what appeared to him the most prominent defects in the academies and colleges as organized and conducted, he next proceeds to point out the remedies.

1. The organization and discipline should be strictly military.

Under a military system, subordination and discipline are much more easily preserved than under any other. Whenever a youth can be impressed with the true principles and feelings of a soldier, he becomes, as a matter of course, subordinate, honorable, and manly. He disdains subterfuge and prevarication, and all that low cunning, which is but too prevalent. He acts not the part of the assassin, but if he have an enemy, he meets him openly and fairly. Others may boast that they have broken the laws and regulations of the institution of which they are, or have been members, and have escaped detection and punishment, by mean prevarication and falsehood. Not so the real soldier. If he have broken orders and regulations, he will openly acknowledge his error, and reform; but will not boast of having been insubordinate. Those principles, if imbibed and fixed in early youth, will continue to influence his conduct and actions during life; he will be equally observant of the laws of his country, as of the academic regulations under which he has lived; and will become the more estimable citizen in consequence thereof. I shall not pretend, however, that all who wear a military garb, or live, for a time, even under a correct system of military discipline, will be influenced in their conduct by the principles above stated; but if they are not, it only proves that they have previously imbibed erroneous principles, which have become too firmly fixed to be eradicated; or that nature has not formed them with minds capable of soaring above what is low and groveling.

2. Military science and instruction should constitute a part of the course of education.

The constitution of the United States has invested the military defense of the country in the great body of the people. By the wise provisions of this instrument, and of the laws made in pursuance thereof, every American citizen, from eighteen to forty-five years of age, unless specially exempted by law, is liable to be called upon for the discharge of military duty—he is emphatically a citizen soldier, and it appears to me perfectly proper that he should be equally prepared by education to discharge, correctly, his duties in either capacity. If we intend to avoid a standing army, (that bane of a republic, and engine of oppression in the hands of despots,) our militia must be patronized and improved, and military information must be disseminated amongst the great mass of the people; when deposited with them, it is in safe hands, and will never be exhibited in practice, except in opposition to the enemies of the country. I am well aware there are amongst us many worthy individuals, who deem the cultivation of military science a sort of heresy, flattering themselves, and endeavoring to induce others to believe, that the time has now arrived, or is very near, when wars are to cease, and universal harmony prevail amongst mankind. But, my fellow-citizens, be not deceived by the syren song of peace, peace, when, in reality, there is no peace, except in a due and constant preparation for war. If we turn our attention to Europe, what do we behold? A league of crowned despots, impiously called holy, wielding a tremendous military force of two millions of mercenaries! Ill-fated Naples, and more ill-fated Spain, have both felt the effects of *their peaceable* dispositions, and were it not for the wide-spreading Atlantic, which the God of nature in his infinite goodness has interposed between us, we also, ere this, should have had a like experience. The principles of liberty are equally obnoxious to them, whether found in Europe, Asia, Africa, or America. If rendering mankind ignorant of the art of war, (as a science,) would prevent wars, then would I unite most cordially with those, usually termed peace-men, for the purpose of destroying every vestige of it. But such, I am confident, would not be the result. Wars amongst nations do not arise because they understand how to conduct them skillfully and on scientific principles; but are induced by the evil propensities and dispositions of mankind. To prevent the effect, the cause must be removed. We may render nations ignorant of the use of the musket and bayonet; we may carry them back, as respects the art of war, to a state of barbarism, or even of savageism, and still wars will exist. So long as mankind possess the dispositions which they now possess, and which they ever have possessed, so long they will fight. To prevent wars, then, the disposition must be changed; no remedy short of this, will be effectual. In proportion as nations are rude and unskilled in the art of war, will their military code be barbarous and unrelenting, their battles sanguinary, and their whole system of warfare, destructive. War, therefore, in such a case, becomes a far greater evil, than it does under an improved and refined system, where battles are won more by skill than by hard fighting, and the laws of war are proportionally ameliorated. What rational man, what friend of mankind, would be willing to exchange the present humane and refined system of warfare, for that practiced by an Attila, a Jenghis Khan, a Tamerlane, or a Mahomet, when hundreds of thousands fell in a single engagement, and when conquest and extermination were synonymous terms. On the principles of humanity, then, it appears to me that, so long as wars do exist, the military art should be improved and refined as much as possible; for, in proportion as this is done, battles will be less sanguinary and destructive, the whole system more humane, and war itself a far less evil. But independent of any connection with the profession of arms, or of any of the foregoing considerations, I consider a scientific knowledge of the military art, as constituting a very important part of the education of every individual engaged in the pursuit of useful knowledge, and this for many reasons; viz.:—

First. It is of great use in the reading of history, both ancient and modern.

A large portion of history is made up of accounts of military operations, descriptions of battles, sieges, &c. How, I would ask, is the reader to understand this part, if he be ignorant of the organization of armies, of the various systems of military tactics, of the science of fortification, and of the attack and defense of fortified places, both in ancient and modern times? Without such knowledge it is evident he derives, comparatively but little information from a large portion of what he reads.

Second. It is of great importance in the writing of history. I presume it will not be denied, that in order to write well on any subject, it must be understood. How, then, can the historian give a correct and intelligible account of a campaign, battle, or siege, who is not only unacquainted with the principles on which military operations are conducted, but is also ignorant of the technical language necessary for communicating his ideas intelligibly on the subject? This is the principal reason why, as it appears to me, the ancient historians were so much superior to the modern. Many of their best historical writers were military men. Some of them accomplished commanders. The account of military operations by such writers as Xenophon, Thucydides, Polybius and Cæsar, are perfectly clear and intelligible, whereas when attempted by the great body of modern historians, the most we can learn is, that a fortress was besieged and taken, or that a battle was fought and a victory won, but are left in entire ignorance of the principles on which the operations were conducted, or of the reasons why the results were as they were.

Third. It is essentially necessary for the legislator.

The military defense of our country is doubtless one of the most important trusts which is vested by the constitution in the general government, and it is a well known fact, that more money is drawn from the people and disbursed in the military, than in any other department of the government. Now as all must be done under the sanction of the law, I would beg leave to inquire, whether it be not of the greatest importance, that those who are to make such laws should be in every respect well prepared to legislate understandingly on the subject? That there has been, and still is, a want of information on this subject amongst the great body of the members of Congress, I think will be perfectly evident to any one who is competent, and will take the trouble to examine our military legislation since the conclusion of the Revolutionary war. I feel little hesitation in asserting, that from want of this information, more than from any other cause, as much money has been uselessly expended in our military department alone, as would cancel a large portion of the national debt.

Fourth. It is of great use to the traveler.

Suppose a young man, with the best education he can obtain at any of our colleges or universities, were to visit Europe, where the military constitutes the first class of the community, and where the fortifications constitute the most important appendages to nearly all the principal cities, how much does he observe, which he does not understand? If he attempt a description of the cities, he finds himself embarrassed for want of a knowledge of fortification. If he attempt an investigation of the principles and organization of their institutions, or of their governments, he finds the military so interwoven with them all, that they can not be thoroughly understood without it. In fine, he will return with far less information, than with the aid of a military education he might have derived. As it respects the military exercises, I would observe, that were they of no other use than in preserving the health of students, and confirming in them a good figure and manliness of deportment, I should consider these were ample reasons for introducing them into our seminaries generally; they are better calculated than any others for counteracting the natural habits of students, and can always be attended to, at such times as would otherwise be spent in idleness or useless amusements. Having expressed my views thus fully on this subject, I will next proceed to state more specifically the other branches which I would propose to introduce into a complete course of education: and—

1. The course of classical and scientific instruction should be as extensive and perfect as at our most approved institutions. The students should be earnestly enjoined and required to derive as much of useful information from the most approved authors, as their time and circumstances would permit.

2. A due portion of time should be devoted to practical geometrical and other scientific operations in the field. The pupils should frequently be taken on pedestrian excursions into the country, be habituated to endure fatigue, to climb mountains, and to determine their altitudes by means of the barometer as well as by trigonometry. Those excursions, while they would learn them to walk, (which I estimate an important part of education,) and render them vigorous and healthy, would also prepare them for becoming men of practical science generally, and would further confer on them a correct *coup d'œil* so essentially

necessary for military and civil engineers, for surveyors, for travelers, &c., and which can never be acquired otherwise than by practice.

3. Another portion of their time should be devoted to practical agricultural pursuits, gardening, &c.

In a country like ours, which is emphatically agricultural, I presume it will not be doubted, that a practical scientific knowledge of agriculture would constitute an important appendage to the education of every American citizen. Indeed the most certain mode of improving the agriculture of the country will be to make it a branch of elementary education. By these means, it will not only be improved, but also a knowledge of their improvements generally disseminated amongst the great mass of the people.

4. A further portion of time should be devoted to attending familiar explanatory lectures on the various branches of military science, on the principles and practice of agriculture, commerce and manufactures, on political economy, on the constitution of the United States, and those of the individual states, in which should be pointed out particularly the powers and duties of the general government, and the existing relations between that and the state governments, on the science of government generally. In fine, on all those branches of knowledge which are necessary to enable them to discharge, in the best possible manner, the duties they owe to themselves, to their fellow men, and to their country.

5. To the institution should be attached a range of mechanics' shops, where those who possess an aptitude and inclination might occasionally employ a leisure hour in learning the use of tools and acquiring a knowledge of some useful mechanic art.

The division of time, each day, I would make as follows, viz.:—

Eight hours to be devoted to study and recitation; eight hours allowed for sleep. Three hours for the regular meals, and such other necessary personal duties as the student may require. Two hours for the military and other exercises, fencing, &c. The remaining three hours to be devoted, in due proportion, to practical agricultural and scientific pursuits and duties, and in attending lectures on the various subjects before mentioned.

Some of the most prominent advantages of the foregoing plan would, in my opinion, be the following; viz.:—

1. The student would, in the time usually devoted to the acquirement of elementary education, (say six years) acquire, at least, as much, and I think I may venture to say more, of book knowledge, than he would under the present system.

2. In addition to this, he would go into the world an accomplished soldier, a scientific and practical agriculturist, an expert mechanician, an intelligent merchant, a political economist, legislator and statesman. In fine, he could hardly be placed in any situation, the duties of which he would not be prepared to discharge with honor to himself and advantage to his fellow-citizens and his country.

3. In addition to the foregoing, he would grow up with habits of industry, economy and morality, and, what is of little less importance, a firm and vigorous constitution; with a head to conceive and an arm to execute—he would emphatically possess a sound mind in a sound body.

After much correspondence Capt. Partridge decided to carry out his principles of education in an institution organized on his own plan and conducted by himself, with such assistance as he could command, in his native village of Norwich, Vermont. Here he opened, on the 4th of September, 1820, the American Literary, Scientific and Military Academy, on which the pupils or their parents had their choice of studies, out of a course as extensive as that of any academy and college in New England combined—in which military training formed a prominent feature, and the mathematics, especially as applied to surveying and engineering, received special attention. During the four years and half of its continuance in Norwich the Academy was attended by 480 pupils, representing twenty-one out of the twenty-four states, and of these, and especially of such as continued on an average two years at the institution, a large proportion became distinguished in military, public, and business life—as large it is believed as the records of any other institution for the same period of time can show. Its success demonstrated beyond cavil, that military exercises and duties are not inconsistent with ardent devotion, and the highest attainments in literary and scientific studies.

In 1824, the citizens of Middletown, Connecticut, made a liberal subscription to secure the location there, of a college about to be established in that State, under Episcopal auspices. Failing in that object, by the location of the institution at Hartford, where it now exists under the name of Trinity College, they invited Capt. Partridge to remove his Academy to their city, and offered to erect and place at his disposal suitable buildings for his accommodation. This invitation and offer were accepted, and on the 1st of April, 1825, he closed his institution at Norwich, and on the 1st of September following, opened his new course of instruction at Middletown, with an attendance of two hundred and ninety-seven pupils in the first year. During the three years—up to September 1828, the American Literary, Scientific, and Military Academy at Middletown remained under his superintendence, there were nearly twelve hundred pupils representing every State and Territory of the United States, the British Provinces, Mexico, several of the South American States, and the West Indies. This attendance shows conclusively, that the military and scientific element, together with an optional course of study, and a term of residence limited by the ability of the pupil to complete the course, met a want not provided for in existing colleges. Of those who completed the full course of study begun at Norwich, as large a proportion, as the corresponding graduates of any American college, attained a high degree of usefulness and eminence in widely diversified fields of labor. Among its graduates are to be found the founders or professors of several State Military Institutes, many officers of the highest rank in the military service of the United States, several eminent civil engineers, superintendents, of railroads, members of Congress, lawyers, and men of practical efficiency and success in every line of business.

One of the characteristic features of Captain Partridge's system of instruction and discipline at Middletown, was the military marches and pedestrian excursions for scientific and recreating purposes conducted under his personal command, or in his company. Several of these excursions occupied three or four weeks, extending in one instance to Washington. The military marches amounted in the aggregate to over two thousand miles, and these and the various pedesterain excursions, included visits to nearly all points of military and historical interest in New England and New York. The immediate and controlling reasons which induced Capt. Partridge to leave Middletown, are not known to the writer of this memoir. He has however, understood it was owing partly to a desire for temporary relief from the cares and confinement of immediate superintendence, that he might start a similar institution in the neighborhood of New York, and partly from disgust at the refusal of the Legislature of Connecticut in 1828, to grant to the institution at Middletown, the usual privileges and powers of a college.

In 1833, 1834, 1837, and 1839, Capt. Partridge was elected representative from the town of Norwich, to the Legislature of Vermont, and in that capacity labored to give efficiency to the military system of the State. In 1834, he secured for certain petitioners a charter for the Norwich University, in which the Trustees are required "to provide for a constant course of instruction in military science and civil engineering," and are "prohibited from establishing any regulations of a sectarian character, either in religion or politics." Of this corporation, consisting of twenty-five trustees, Capt. Partridge was a member, and in organizing the institution in 1825, he was elected president of the Faculty. He continued to instruct in his own department of military science and engineering, and administered the affairs of the university till 1844, when owing to some difficulties arising out of the use of the building, arms, and accourtrements, which were his private property, he resigned.

In 1838, he was influential in calling together a convention of military officers and persons interested in giving greater efficiency to the organization of the militia of the several states, to meet for consultation. This convention met at Norwich on the 4th of July; and continued to meet annually for many years, to discuss plans for the organization and discipline of the militia, for the dissemination of a knowledge of military science, for the defense of the coast, &c. Many reports of this body were drawn up by him, and the proceedings were forwarded to, and printed by order of the Congress of the United States.

In 1839, on the request of many influential citizens, he visited

Portsmouth, Virginia, to establish a Military School, which he did, and which was soon after recognized by the Legislature of the State as the Virginia Literary, Scientific, and Military Institute, and aided by an appropriation out of the Literary Fund. This Institute, with an Institute of a similar character at Lexington, in the western part of the State, has been greatly instrumental in diffusing widely in Virginia a knowledge and taste for military affairs. The success of this institution, and the personal influence of many of his own scholars at Norwich and Middletown, led to the establishment of similar schools in other southern states.

In May, 1842, Capt. Partridge accepted the position of Camp Instructor for a large body of officers and men of the Pennsylvania volunteer militia in encampment at Reading, Berks County. Each evening he delivered a lecture to officers assembled in the General's marquee, and during the day exercised the troops in the manual of arms, and in company, regimental, and brigade movements in the field. On this, and many similar occasions, he demonstrated the correctness and practicability of his theory of national defense, so far as testing the qualifications of officers for command, and giving accuracy, rapidity, and steadiness of exercise and movements to troops, by assembling officers and men of the State Militia, once or twice in the year, in convenient numbers and places, under instructors properly qualified for the work. A few instructors, themselves trained in the best military institutions, and familiar with every improvement in military organization, equipment, and movement, and especially when clothed with the reputation of success in actual service, would soon bring the entire militia of the states into a uniform system, and give respectability and efficiency to this department of the public service. This result would be more speedily realized if a number of educational institutions similar to those which he had organized under many disadvantages and against many prejudices, could call out and cultivate military taste and accomplishments among a portion of the young men of each state.

In 1853, he opened at Brandywine Springs, near Wilmington, in the State of Delaware, another institution in which he fondly hoped his ideal of a National school of education would be realized—an institution in which physical training in connection with military exercises and movements, should accompany the acquisition of practical knowledge of the great principles of science that underlie all the arts of peace and war, and resorted to by students from every state of the American Union. His plan as developed in conversation with those directly interested, embraced his old ideas of scientific, and literary studies with systematic pedestrian excursions,* and marches in vacations to the great objects of natural, economical, and historical interest in different parts of the country. In this latter particular, he unconsciously applied the suggestion of Milton in his letter to Samuel Hartlib, that "the students of his Academy should go out in companies with prudent and staid guides to all quarters of the land, learning and observing all places of strength, and all commodities (facilities) of building and of soil, for towns and tillage, harbors and ports of trade,—even sometimes taking sea as far as to our navy to learn there also, what they can in the practical knowledge of sailing and sea-fight." Arrangements were made for a class of ten or twelve of the most advanced and matured cadets to accompany him to Europe to study the strategy of the great battles of the world, and the armies, armories, and resources of the great nations of Europe—thus again realizing Milton's plan of gratifying "the desire of the more hopeful youth" "to see other countries at three or four and twenty years of age, not to learn principles, but to enlarge experience and make wise observation." But these hopes were darkened for a time by a great disaster, and soon extinguished in the sudden death of the great projector. In the autumn of 1853, the buildings at Brandywine Springs, were consumed by fire, and although arrangements were at once made to secure suitable accommodations at Bristol, Pennsylvania, and upwards of one hundred pupils enrolled their names to attend for a year at that place, still the great motive power of the enterprise was stricken down.

At the close of the year, 1853, Capt. Partridge returned to Norwich, where his family still resided, in apparently good health and the best spirits. A few days after he reached home, he was attacked by sharp and excruciating pains in his back, which were soon subdued by anodynes, but from the prostration and the cause, which proved on a post-mortem examination to be an aneurism near the base of the spine, and which had been exhausting his vitality for years—he never rallied, and on the 17th of January, 1854, he breathed his last—widely and deeply mourned by troops of friends, who loved and admired him as their teacher, or looked up to him as the best expounder of principles of military science and education, and of national defense.

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* Captain Partridge attached much importance to pedestrian excursions in reference both to hygenic, and educational considerations. To these excursions he attributed his own robust health, and his familiar knowledge of all the details of American battles. In one year, (1830,) he made four excursions from Norwich, each occupying from four to six days—and from one hundred and fifty to four hundred miles—the last day's walk generally averaging over sixty miles. He had ascended and measured the altitude of all the highest mountain elevations in the Northern States.

Although living most of his life in the discharge of educational and public duties, under circumstances inconsistent with "a local habitation," he had strong domestic tastes and attachments, and was a genial companion in his own room and home. In 1837, he married Miss Swazey, the daughter of a merchant in Claremont, New Hampshire, and to this happy union were born two children. The oldest boy, George, was educated by the father on his own system, and had displayed vigorous health, and strong partialities and attainments in mathematical studies and their applications; but he survived his father only a few months—"long desolate months they were to the widow and children"—and the tenement of that bright intellect was laid by the side of that of his hardy and indefatigable father in the little village burying-ground. The other son Henry, as he grew up, showed a partiality for the profession of law, and was pursuing his studies in Warren, Penn., when the call of the President of the United States for volunteers, summoned him to the defense of the flag of the country. He enlisted for the war, and was promoted to a captaincy in a Pennsylvania regiment, which was attached to the army of the Potomac, whose varying fortunes he shared till, greatly weakened by exposure and disease, he was honorably discharged from the service. His superior officer in writing to his mother, says: "He is in every respect a model officer. How could he be otherwise? He has it all by right of inheritance, and I fully appreciate that you have made a very great contribution to the government and the country in sending him forth to fight the battles which have been forced upon us."

POPULAR OBJECTIONS TO A NATIONAL MILITARY SCHOOL.

NOTE.

As an Appendix to our Memoir of Capt. Alden Partridge, we republish the following Memorial by him to the Congress of the United States, not because we approve the objects or the arguments of either document, but as part of the educational history of the country.

MEMORIAL OF ALDEN PARTRIDGE,

Relating to the Military Academy at West Point, and praying that young men educated at other military schools may have an equal chance for admission to the army as those young men have who are educated at West Point. January 21, 1841. *Referred to the Committee on Military Affairs.*

To the Honorable Congress of the United States:—The memorial of Alden Partridge, President of the Norwich University, at Norwich, State of Vermont, respectfully showeth:

That your memorialist holds it to be a cardinal principle of our republican institutions, that stations of honor, trust, and emolument should be equally open to all our citizens, to which all have an equal right to aspire, and from which none can constitutionally be excluded by any law, rule, or regulation whatever. Your memorialist has, however, witnessed, with deep regret, a direct violation of this vital principle of our constitution, by the rules and regulations adopted for the organization and government of the Military Academy at West Point. The cadets of that institution, all of whom are educated at the *public* expense, have, for many years, *monopolized* nearly, if not quite, all of the stations of honor, trust, and emolument, above that of a non-commissioned officer, in the military establishment of the United States, to the utter exclusion of those who are equally well qualified, equally meritorious, and who are educated at their *own* expense. But, in order to place this subject more clearly before your honorable body, your memorialist would call your attention to the law of the 29th of April, 1812, entitled, "An act making further provision for the corps of engineers." By the provisions of this act, no candidate can be admitted into the Military Academy who is under fourteen, or over twenty-one, years of age. The effect of this provision is to exclude every young man in the United States who is above twenty-one years of age from the appointment of cadet, while the rules of the War department require that none except those educated at this academy can be commissioned in the army of the United States. The effect, then, of the law and regulation is to utterly exclude all the youth of our country, except such select few as the President may think proper to place in this "public charity school," from the military service of their country, who are above twenty-one years of age, unless they will enter in the humble capacity of *privates* or *non-commissioned officers.* And can such a system be in accordance with the principles of our constitution? Your memorialist believes not. On the contrary, he feels confident in the assertion that it is a most flagrant and palpable violation of them. The direct and certain effect of this institution is to extend *Executive patronage;* for the President has the entire selection of the *chosen two hundred* and *fifty* who are to be placed in the institution, and also to establish an *aristocracy* of the most dangerous kind, viz.: a *military* aristocracy in the United States. What, your memorialist would ask, is an aristocracy? Is it not where any particular class in a State claims and exercises privileges of which the great body of the people are deprived? And do not the cadets at West Point enjoy such privileges? and if so, do they not constitute an aristocracy? Your memorialist believes that neither the fact nor the inference can be controverted. But your memorialist will go further, and aver that the regulations at West Point have not only constituted an aristocracy in the United States, but that this aristocracy has already become, in a great degree, *hereditary*. How many individuals, your memoralist would ask, who have held offices of honor, trust, or emolument, under the Government, for the last twenty-five years, have had their sons, brothers, nephews, or other relatives, educated at the public expense at West Point, to the entire exclusion of those who (to say the least,) were equally meritorious, and equally capable of rendering service to the republic? And how many of those thus educated have ever rendered any service whatever? A reference to the rolls of the institution will answer these inquiries. Your memorialist has *personal* knowledge of many instances. Your memorialist is well aware that it has been attempted, by the friends of this monstrous invasion of the rights of the people, to cast around it the mantle of Mr. Jefferson. Your memorialist is ready to grant that the institution was established during the early part of the first term of Mr. Jefferson's administration; but denies that any inference can be drawn from that circumstance to sustain the present system. The institution *then* consisted only of the corps of engineers, which was limited to sixteen officers and four cadets, without any of those exclusive privileges which have since been conferred upon it. On the 29th of April, 1812, (just previous to the declaration of war,) a law was, however, passed, entitled "An act making further provision for the corps of engineers;" by the provisions of which, the whole number of cadets, whether of infantry, artillery, or riflemen, was not to exceed two hundred and fifty; and the President to appoint a limited number of cadets, and conferring on him a *discretionary* power to attach them to the Military Academy, was evidently induced by the certainty of immediate war with Great Britain, and had a direct reference to a *war* establishment. Your memorialist would respectfully call the attention of your honorable body particularly to the provisions of the law of 1812 just referred to; and, if he does not much mistake, it will satisfactorily appear that the President is not *required*, but simply authorized, to appoint a single cadet; and that it is left entirely discretionary with him, after they are appointed, to attach them to the Military Academy, or to attach them to their respective companies, agreeably to the provisions of other laws then in existence. And here your memorialist would observe that, in the *peace*-establishment of the army previous to the late war, two cadets were allowed to each company of artillery, light infantry, and infantry, amounting, in the total, to a *larger* number than was authorized by the law of 1812. But neither President Jefferson, nor President Madison considered that the law required of them to fill those vacancies so long as they considered their services were not required: and they con sequently did not fill them. The largest number of cadets ever in service at the same time, previous to the late war, did not exceed forty, and seldom exceeded twenty-five. Do the necessities of the country require that any larger number should be retained in service now, than were deemed necessary by Presidents Jefferson and Madison during a time of peace? Your memorialist believes not. But it is urged, in favor of this academy, that it presents a most favorable opportunity for the education of meritorious young men who are poor, and, consequently, unable to educate themselves. Your memorialist, however, has yet to learn by what *constitutional* authority Congress is empowered to appropriate any portion of the public revenue for the support of a *national charity school* for the education of the poor. Besides, if this power did exist, (which your memorialist presumes no reasonable person will contend does,) *all* the poor in the United States have an equal right to the benefits to be derived from its exercise, and that, consequently, the institution at West Point is on quite too limited a plan for the accomplishment of the contemplated object. Either, then, the institution should be very much enlarged, or several others established in different parts of the United States, which would be far more convenient for the great body of the poor. If, however, the rolls of this institution for the last twenty years be examined, it will be found that many more of the *rich* and *influential* have been educated there, than of the *poor*. Poverty, however meritorious the subject of it may be, is but a sorry recommendation for admission to this aristocratic establishment.

But it is further urged, that this institution is *necessary* for the education of the officers of the army; and that, were it abolished, the candidates for commissions would not be properly qualified for the discharge of their duties as officers. Before your memorialist proceeds to exaime the truth of this position, he would inquire, at what institution, and at whose expense, Generals Washington, Greene, Knox, Putnam, Lincoln, Sullivan, Morgan, Wayne, Sumter, Pickens, Marion, and all the other officers of the revolutionary army, by whose valor, skill, and patriotic exertions, these United States now constitute a free and independent nation, received their education? The answer is ready: at the ordinary institutions of the country, and at their *own* expense; just as every *American citizen* should be educated. And have the *proteges* of the West Point Academy, on whose education so many millions of dollars of the peoples' money have been expended within the last twenty years, exhibited more skill, more valor, or more patriotism, than did the officers of the revolutionary army? Let the events of the Florida war, as compared with those of the Revolution, answer the question. The truth is, (and it can not be much longer concealed from the view of the people, by the reports of *boards of visitors*,) that the whole system of education at West Point is well calculated to form *military pedants* and *military dandies*, but will never form *efficient soldiers*. Much more important to them is their attention to the *cut* of the *coat*, the placing of a *button*, and the *snowy whiteness of gloves and pantaloons*, than to those *physical* and *moral qualities* which are absolutely necessary to the correct and efficient discharge of the active duties of the field.

But your memorialist denies the truth of the position, that the West Point Academy is necessary for the education of young men for the army. There are other institutions where military science and instruction constitute a branch of education for the pupils. Of these institutions, however, your memorialist will particularize but one—and that is the Norwich University, at Norwich, Vermont, over which he has the honor to preside. This institution was incorporated by the Legislature of Vermont, in November, 1834, with full power to confer diplomas, &c. By the act of incorporation, military science is made a part of the education of all the pupils. They are consequently correctly and thoroughly instructed in the theoretical part of military science, and also in the *practical* duties of the soldier, and every one who graduates at this institution is well qualified to discharge the duties of a company officer (and even, if necessary, to command a battalion) in any corps of the army. In order further to prepare them to discharge the more hardy and active duties of the soldier, they occasionally perform military marches. In the month of July, 1840, they performed a march, under the personal command of your memorialist, to the celebrated *military post* of Ticonderoga, carrying their arms, accoutrements, knapsacks, &c.; the whole length of which was one hundred and sixty-five miles. Of this distance, one hundred and forty miles was on foot, and twenty-five miles by steamboat. The march on foot was performed in a little more than five days, crossing the Green Mountain range twice, and the ground, with the heavens for covering, constituted their only resting-place at night. The weather, during the whole march, was hot; and they were enveloped in a cloud of dust, occasioned by the severe drought, nearly the whole distance. They all returned in excellent health and spirits. The youngest member of the corps was thirteen years of age. The other branches of literature and science are attended to as extensively, and the latter much more practically, than at any other institution in the United States; and the students are consequently equally well qualified to discharge their duties in the *cabinet* and in the *field*. But notwithstanding the members of this institution are, to say the least, as well qualified for commissions of any grade, and in any corps of the army, as those of any other institution in the country, and have also obtained the necessary qualifications at their own expense, they are virtually excluded therefrom by the *arbitrary* and *monopolizing* regulations (established without the least sanction of law,) of the Military Academy at West Point. In the month of September, 1840, a member of the Norwich University, the son of a highly respectable gentleman in the city of New York, well recommended, applied to the Secretary of War for a commission in the army, but was informed that there were *no vacancies*, and that the cadets from West Point were *more than sufficient to fill all the vacancies*. On the 21st of December, 1840, your memorialist wrote to the Secretary of War, recommending three young gentlemen, members of the Norwich University, for commissions in the army of the United States; and received an answer, dated War Department, December 29, 1840, from which the following is an extract: "I acknowledge the receipt of your letter of the 21st instant, recommending Messrs. Morris, Stevens, and Dorne, for appointments in the army; and I have here to inform you, in reply, that there being no vacancies at present, the application will be filed for consideration, when any occur, *to which they can be appointed*." Now your memorialist feels confident that the records of the War Department will show that a large number of cadets at West Point are commissioned every year; and he presumes that such will continue to be the case, unless a radical change is effected. But when young gentlemen of equal respectability and attainments, who have not been of the *favored few* whom *Executive favor* has admitted into this nursery of aristocracy, to be educated at the expense of the honest working men of the country, become applicants, their claims are entirely set aside. Against this *unconstitutional, unequal,* and *monopolizing* practice, your memorialist deems it his duty respectfully, but most decidedly, to protest; and to ask of your honorable body the establishment of some rule whereby the members of the Norwich University, at least, (o whom, in many respects, he stands in the relation of guardian,) may be restored to their *constitutional rights*; that when they become applicants for stations of honor, trust, or emolument, in the military service of their country, they shall stand on terms of equality with the cadets at West Point.

Your memorialist deems it proper here to remark, that in October, 1840, he addressed a communication to the President of the United States, on this subject, requesting to be informed whether, in the opinion of the President, he possessed the power to remedy the grievance of which your memorialist complains; and, if so, whether such power would be exercised for that purpose. To this communication no answer has been received. Your memorialist, availing himself of the privileges granted to every American citizen, by the first amendment of the constitution of the United States, would beg leave to call the attention of your honorable body to some subjects, which he considers grievances of a high order, and respectfully but earnestly solicits that they may be redressed, viz:

1st. Your memorialist considers the Military Academy at West Point a grievance. Under its present organization, it is unconstitutional, calculated to foster a military aristocracy in the country; calculated to depress the militia, (our only constitutional defense,) by engrossing all the patronage of government; and is entirely unnecessary, as military science can be attained at other institutions, from which the necessary officers for the army can be supplied without any tax on the people. Your memorialist, therefore, asks that this institution may be abolished, and that the money that is annually appropriated for its support may be applied to aid in disciplining the militia, and disseminating military information amongst the people, who are its constitutional and safe depositories.

2nd. Your memorialist considers the Board of Visitors that annually assemble at West Point a grievance. This board never had any *existence whatever in law*, but was established by Executive usurpation; yet, to pay the expense of this illegal board, your memorialist believes that more than fifty thousand dollars has been drawn from the public treasury. Your memorialist earnestly solicits that this appropriation, the making of which is a direct sanction to Executive *usurpation*, should be discontinued.

3rd. Your memorialist considers the removal of the head-quarters of the corps of engineers from West Point to Washington a grievance, because it is a direct violation of the law of the 16th of March, 1802, establishing that corps. That law requires the commandant of engineers to reside at West Point, unless ordered, by the President of the United States, on duty at some other place in the line of his profession; and, when at West Point, the law makes him superintendent of the Military Academy; and when he is absent, the next in rank (who is then present,) is made the *legal* superintendent. The appointment, therefore, of any particular officer as permanent superintendent, is evidently illegal, as the law has clearly specified who the superintendent shall be.

All of which is respectfully submitted,

A. Partridge,
President of Norwich University.

January, 13, 1841.

REMARKS BY THE EDITOR.

We publish the foregoing Memorial of Capt. Partridge, asking Congress to redress "the grievance" of the Military Academy, not because we have the slightest sympathy with the object or main arguments of the memorialist, but as specimens of the opinions held and propagated by a graduate, professor, and superintendent of the Academy, who did more than any other individual to introduce military instruction and exercises in schools not national or professionally military. We can not, however, put it forth without accompanying it with a few brief remarks.

To Capt. Partridge, more than to any one man, and to his pupils, and personal friends, as we believe, is due the popular objections which prevail respecting the United States Milltary Academy, except so far as the objections spring from the abuse of the mode of apppointing Cadets. For nearly twenty years Capt. Partridge was never known to express any doubt of the constitutionality or usefulness of this institution. His objections first took shape and utterance when he was superceded in the superintendence by Colonel Sylvanus Thayer. Of the circumstances and results of his removal, and of the appointment of Col. Thayer, and the subsequent reorganization of the Academy, something has already been said in the History of West Point, in this volume, (p. 17–48.) and more will be said when we come to speak of the labors of Col. Thayer.

So far as these objections are directed to the constitutionality of the laws for establishing the Cadet Corps, as distinct from any other Corps of the army, or against training officers collected together and organized as a school, we think them preëminently frivolous. If any friend of the Academy would assure his doubtful faith in its constitutionality, let him read Capt. Partridge's Memorial, asking the same Congress to establish a system of National Education, which he petitions to redress the grievance of a special school, that every civilized government holds to be indispensable to the right organization of its armies.

So far as these objections are aimed at the mode of appointment and promotion,—confining both to the patronage of one man in the country, or one man in a Congressional District, acting in either case without personal examination of the party to be admitted or promoted, and excluding others, it may be, better qualified,—we hold them to be valid. A more disgraceful record of failures, where an opportunity of selecting the most meritorious candidates existed, can not be shown.

While we believe that candidates are too often recommended and nominated to the appointing power, from family and party considerations, we have seen no reason to believe that the social condition or occupation of parents has influenced the appointments. On the other hand, the records of the Academy, as made out in this particular by the Cadets themselves, exhibit a fair representation from all classes and occupations of society.

According to an official Statement, prepared by Capt. Boynton, and published in his History of the Academy, of [illegible] cadets admitted from 1842 to 1863 inclusive, the fathers of 1,300 were farmers or planters; of 681, were lawyers; of 672, were merchants; of 377, were mechanics; of 69, were physicians; of 256, were in the civil service; of 116, were clergymen; of 467, were in the army or navy; of 572, were editors, masters of vessels, &c. Of the whole number, 1,136 were orphans, 1,585 were in moderate, 534 in reduced, 62 in indigent, and 324 in independent circumstances. We shall publish the Statement in our next Number.

The views presented in the memorial of Capt. Partridge in 1841, have found advocates in and out of Congress before and since. They were anticipated by the Secretary of War (John C. Calhoun), under whose energetic administration of the Department in 1816, the Academy first assumed the organization of an efficient military school—a place of thorough scientific instruction in the knowledge not simply of military drill, but of the duties of an accomplished artillerist and military engineer; and they have been deepened by the radically vicious system of appointment to cadetship, in which personal and political considerations have in too many instances outweighed the merits of young men, whose natural aptitude and generous ambition would have found here the special field for their largest development and usefulness. These views found expression in the elaborate speech of Franklin Pierce, then a member of the House from New Hampshire, in the discussion of an amendment to the apppropriation bill in 1836 (June 30), who "felt bound to oppose the bill in every stage of its progress"—mainly on the ground that "the institution conferred exclusive and gratuitous privileges."

> It is *gratuitous*, because those who are so fortunate as to obtain admission there, receive their education without any obligation, except such as a sense of honor may impose, to return, either by service or otherwise, the slightest equivalent. It is exclusive, inasmuch as only one youth out of a population of more than 47,000 can participate in its advantages at the same time; and those who are successful, are admitted at an age when their characters cannot have become developed, and with very little knowledge of their adaptation, mental or physical, for military life. The system disregards one of those great principles which, carried into practice, contributed perhaps, more than any other, to render the arms of Napoleon invincible for so many years. Who does not perceive that it destroys the very life and spring of military ardor and enthusiasm, by utterly foreclosing all hope of promotion to her soldier and non-commissioned officer? However meritorious may be his services, however pre-eminent may become his qualifications for command, all are unavailing. The portcullis is dropped between him and preferment, the wisdom of your laws having provided another criterion than that of admitted courage and conduct, by which to determine who are worthy of command. They have made an Academy, where a certain number of young gentlemen are educated annually at the public expense, and to which there is, in consequence, a general rush, not so much from sentiments of patriotism, and a taste for military life, as from motives less worthy—the avenue, and the only avenue, to rank in your army.
>
> I deny utterly the expediency and the right to educate at the public expense, any number of young men who, on the completion of their education, are not to form a portion of your military force, but to return to the walks of private life. Such was never the operation of the Military Academy until after the law of 1812; and the doctrine, so far as I have been able to ascertain, was first formally announced by a distinguished individual, at this time sufficiently jealous of the exercise of executive patronage, and greatly alarmed by what he conceives to be the tendencies of this Government to centralism and consolidation. It may be found in the report of the Secretary of War, communicated to Congress in 1819.

Mr. Pierce, afterwards President Pierce, quotes with approbation the suggestion of Col. Williams in a report to Mr. Jefferson in 1808

—that the plan should be large enough to take not only minor officers, "but also any youth from any of the States who might wish for such an education whether designed for the Army or Navy, or neither, and let them be assessed to the value of their education, which might form a fund for extra or contingent expenses."

These are the true doctrines upon this subject; doctrines worthy of the administration under which they were promulgated, and in accordance with the views of statesmen in the earlier and purer days of the Republic. Give to the officers of your army the highest advantages for perfection in all the branches of military science, and let those advantages be open to all in rotation, and under such terms and regulations as shall be at once impartial toward the officers, and advantageous to the service; but let all young gentlemen who have a taste for military life, and desire to adopt arms as a profession, prepare themselves for subordinate situations at their own expense, or at the expense of their parents or guardians, in the same manner that the youth of our country are qualified for the professions of civil life.

I am far from desiring to see this country destitute of a Military Academy; but I would have it a school of practice, and instruction, for officers actually in the service of the United States; not an institution for educating, gratuitously, young gentlemen, who, on the completion of their term, or after a few months' leave of absence, resign their commissions, and return to the pursuits of civil life.

There has already been expended upon the institution more than three millions, three hundred thousand dollars. Between 1815 and 1831, thirteen hundred and eighteen students were admitted into the Academy; and of all the cadets who were ever there, only two hundred and sixty-five remained in the service at the end of 1830. Here are the expenses you have incurred, and the products you have realized.

When the War of Secession broke out, and graduates of the Academy then in the army,—like many other Southern men, in the civil service of the United States, imbued with the political doctrines and sympathizing with the domestic institution, on which the War was based—sided with the political leaders of their several states, the opposition to the institution took another direction. The record of the War silenced these objectors. According to Gen. Cullum's *Biographical Register of the Graduates of the Military Academy*, out of 1,249 graduates living at the beginning of the Rebellion, 99 in civil life and 184 from the army, joined in the war against the United States. Three-fourths remained faithful. Of 821 graduates in the Army at the time, 184 (about one-fifth) joined in the Rebellion. Of the 99 in civil life all but one were residents in slave territory. Of 350 graduates who were born in or appointed from slave States, 162 remained loyal. Of the 292 loyal graduates in civil life, at the date of secession, 115 re-entered the Army—all below the age of 45, except those who were disabled for active duty, and most of these served in civil capacities. One-fifth of all the graduates who served in the battles of the Rebellion, one-fifth laid down their lives, and more than one-half were wounded in defence of the flag.

IV. AMERICAN LITERARY, SCIENTIFIC, AND MILITARY ACADEMY.

AT NORWICH, VERMONT.

THE AMERICAN LITERARY, SCIENTIFIC, AND MILITARY ACADEMY, at Norwich, Vermont, was opened on the 4th of September, 1820, by Capt. Alden Partridge, and continued under his personal superintendence and instruction, assisted by several professors, until April 1st, 1825, when it was discontinued at Norwich, and reopened at Middletown, Connecticut. The catalogue of the officers and cadets published August, 1821, contains a prospectus from which we make extracts to exhibit the aims of that school and of this particular class of institutions at that date.

TERMS OF ADMISSION.

The requisite qualifications for becoming members of the Institution are the following, viz: That the candidate be of good moral character, that he be able to read and spell correctly, to write a fair, legible hand, and work the ground rules of arithmetic.

COURSE OF INSTRUCTION.

Young gentlemen destined for a college education, can be prepared at this seminary for admission into any college or university in the country, either as freshmen, or one or two years in advance, and in the mean time will be enabled to acquire a good military and practical scientific education. Young gentlemen also, destined for the navy, can here be instructed in the scientific part of their profession, and at the same time, obtain a correct knowledge of fortification, and of military operations generally, on land, which it is believed they would find highly useful in future life. Parents and guardians who are desirous of placing their sons or wards at this seminary, are requested to state whether they wish them to go through with the full course of education; and if not, to specify, particularly, those branches to which they desire them to attend, and also to mention their ages.

The course of Latin, Greek, Hebrew, French, and English languages, Arithmetic, the construction and use of Logarithms, Algebra, Geometry, Plane and Spherical Trigonometry, Planometry, Stereometry, Mensuration of heights and distances by Trigonometry, and also Geometrically, practical Geometry generally, including particularly Surveying and Leveling, Conic Sections, the use of the Barometer, with its application to measuring the altitudes of mountains and other eminences, Mechanics, Hydrostatics, Hydraulics, the elements of Chemistry and Electricity, Optics, Astronomy, Navigation, Geography, including the use of Maps and the Globes; Composition, Logic, History, Ethics, the elements of Natural and Political Law, the Law of Nations, Military Law, the Constitution of the United States, and of the states severally, Metaphysics; Agriculture, Permanent and Field Fortification, Field Engineering generally; the construction of Marine Batteries, Artillery duty, the principles of Gunnery, a complete course of Military Tactics, the attack and defense of fortified places, Castrametation, ancient Fortification, the ancient modes of attacking and defending fortified places, the ancient Tactics, particularly those of the Greeks and Romans, with a description of the organization and discipline of the phalanx and legion; Book-Keeping, Music, Fencing, Military Drawing, Topography, Civil Engineering, including the construction of Roads, Canals, Locks, and Bridges; Architecture.

The Hebrew and French languages, Fencing and Music will not be considered as comprised in the regular course of education, and consequently those who attend to them will be charged separately.

MILITARY EXERCISE, AND DUTIES.

The students will be regularly and correctly instructed in the elementary school of the soldier, and also in those of the company and battalion; they will likewise be taught the regular formation of military parades, the turning off, mounting, and relieving guards and sentinels; the duties of officers of the guard, officers of the day, and adjutants; the making out correctly the different descriptions of military reports; in fine, all the duties incident to the field or garrison. The military exercises and duties will be so arranged as not to occupy any of the time that would otherwise be devoted to study; they will be attended to at those hours of the day which are generally passed by students in idleness, or devoted to useless amusements, for which they will be made a pleasing and healthful substitute. Practical scientific operations will be frequently attended to, which will conduce equally to health and improvement.

The students will be required to sleep on matrasses, or straw-beds; no feather-beds will be allowed in the establishment.

For the purpose of giving to the students a military appearance, when engaged on military duty, and also on a principle of economy, they are required to wear a uniform dress, a description of which is hereunto annexed. In prescribing a dress, it has been endeavored to combine as far as possible, cheapness and a neat military appearance, with such a form as, while it leaves the student the free and unrestrained use of his limbs, will at the same time encumber him the least possible. The discipline will be strict, but correct; and particular attention will be given to the full development and due cultivation of all those liberal, manly, noble and independent sentiments which ought to characterize every American, whether citizen or soldier. The strictest attention will be given to the health, manners and morals of the students. They will be continually under the personal inspection of the superintendent, who will bestow upon them all that care and attention which it is believed their parents, under similar circumstances, would bestow.

MILITARY LECTURES.

For the accommodation of gentlemen, (particularly of those holding commissions in the volunteer corps and militia,) who may not wish to go through with a regular course of military studies and instruction, and also for the purpose of diffusing military science more generally, Capt. Partridge will deliver annually at the before-mentioned seminary, three courses of public lectures; the first course to commence on the second Monday in May, the second course on the second Monday in July, and the third course on the first Monday in October, annually. These lectures will embrace the following branches of military science and instruction, viz.:—

1st. Permanent and field fortification, the construction of field works generally, and also of marine batteries.

2d. The attack and defense of fortified places.

3d. The use of artillery, with a general exposition of the principles of gunnery.

4th. Military Tactics.

5th. Garrison and field service of troops, embracing particularly their police and rules for turning off, mounting and relieving guards and sentinels, and also for guard duty, likewise castrametation.

6th. General rules for the attack and defense of a province or country embracing an exposition of the principles of base lines of operation.

7th. Rules for the inspection and review of troops.

8th. A summary of ancient fortification, and also of the ancient modes of attacking and defending fortified places.

9th. A summary of the ancient tactics, particularly those of the Greeks and Romans.

10th. A description of some of the most celebrated battles and sieges, both of ancient and modern times, for the purpose of practically illustrating the principles explained in the lectures. In order to render the lectures on fortification perfectly intelligible, plans will be prepared, on which the several parts of a work will be clearly and distinctly exhibited.

Particular attention will be given to a full explanation of all the technical terms used in fortification, as well as in the other departments of military science. A full course will comprise about twenty lectures; five to be delivered in each week until the course be finished. The terms for attending a course will be ten dollars. Gentlemen subscribing for two courses, will be allowed ever after to attend gratis. All those attending the lectures, will be entitled, during the time of such attendance, to practical military instruction, and also to the privilege of the reading-room, without any additional charge.

On the 1st of April, 1825, Capt. Partridge was induced by liberal overtures from citizens of Middletown, Conn., to leave his institution at Norwich, and remove to Middletown, Conn., and reopen it in that city. Before doing so he published a card in which he exhibits the progress and results of his labors at Norwich.

This seminary was opened at Norwich, in the state of Vermont, on the 4th of September, 1820, under my immediate direction and superintendence; and although the plan was new and untried, besides containing principles, which were by many considered discordant with each other, viz., the connecting of mental improvement with a regular course of bodily exercise, and the full development of the physical powers, the whole conducted under a military system of discipline; still its success has exceeded, rather than fallen short, of my most sanguine expectations.

The following extract from a recent report of the adjutant of the institution, compiled from the rolls and other authentic documents, will enable the public to form their conclusions, from facts on this subject.

1st. The total number of cadets who have joined the institution, since its organization, is 480.

2d. The numbers from the respective states, and other sections hereafter mentioned, are as follows, viz.:—

From Maine,	28	From South Carolina,	45
Massachusetts,	89	Kentucky,	2
New Hampshire,	57	Georgia,	7
Vermont,	115	Ohio,	1
Connecticut,	83	Louisiana,	4
Rhode Island,	10	Mississippi,	5
New York,	40	Missouri,	1
Pennsylvania,	15	Michigan,	2
New Jersey,	6	District of Columbia,	2
Delaware,	2	Lower Canada,	2
Maryland,	4	Havana, Island Cuba,	1
Virginia,	1	Island Scio, Greece,	1
North Carolina,	7		

3dly. Of the above number, twenty are commissioned and warrant officers of the U. S. Navy, viz., 4 lieutenants, 1 assistant-surgeon, and 15 midshipmen.

4thly. Out of the whole, 441 have been engaged in the study of the Mathematics, and out of this number 145 have completed a full course of "*Hutton's Mathematics*." Of these, 80 have, in addition, attended to practical Mathematics, 56 have continued their course through the study of Philosophy, and others are now fast progressing in the accomplishment of those higher branches also.

5thly. The whole number who have studied the Greek and Latin languages, is about 150. Of these, 25 have advanced far towards completing a course, although none have gone entirely through. Of those not included in the last-mentioned number, many have fitted for college, or progressed still farther, and many are progressing. What is here considered a course, is the same which is laid down in the prospectus, which could be scarcely completed in the period since the establishment of the institution.

6thly. The number of those who have attended to the French language, is about 130. Twenty have become well acquainted with the language—30 are very well advanced, and many of the remainder have made respectable progress.

7thly. About ten or twelve of those who have been, or are now members of the institution, have devoted considerable time and instruction of the militia or volunteer corps, in this and various other sections of the country, and many of them are still engaged in that useful employment.

Of those who have been, or are now, engaged in the study of the Latin and Greek languages, I flatter myself there are several who would not suffer by a mparison with any of the same degree of advancement at our older and most oved seminaries; and as a school of practical science, I have little hesitation ting, that it is second to none in our country. In confirmation of this [illegible] I would observe, that since the establishment of the seminary, my pu- [illegible] dition to their usual exercises in practical geometry, and many opera- [illegible] inor consequence, have executed, in a very handsome manner, a profile of the untry, exhibiting the perpendicular altitudes of all the prominent points, above tide water, as determined by actual observation, from the summit of Manchester mountain, in the state of Vermont, to the summit of mount Washington, the highest elevation of the White Mountains, in the state of New Hampshire, a distance of 165 miles. They have also executed a similar profile from Norwich to Whitehall, in the state of New York, a distance of sixty-eight miles, and have further executed a trigonometrical survey of the country around Norwich, for a distance in some directions, of about twenty miles. This survey was commenced, and has been prosecuted, in such a manner as to serve as a basis for any further operations that may be thought necessary. A handsome topographical plan of this survey is finished.

In the department of French, it is believed, the pupils have made as rapid progress as at any seminary in our country, and in Mineralogy, Botany, &c., although but recently commenced, there appears to be much zeal, and a corresponding improvement, amongst the classes which have attended, and those still attending, numbering about sixty.

Music and fencing have been attended by a large proportion of the members, and with a progress highly creditable to them.

The military exercises and duties are common to all the cadets, and it is believed very few have left the seminary, who were not competent to instruct from the elementary drill of the soldier, to embrace the school of the battalion, and who, in addition, did not possess a very competent knowledge of the principles of the grand tactics, of the elements of permanent and field fortification, of the principles of gunnery, &c. The beneficial effects of the regular system of exercise and active duty, to which my pupils are subject, upon their health, has been fully equal to my expectations. But one death has happened at the institution, since its commencement; and this was a youth who had just entered his name on the rolls, but was attacked by a prevailing epidemic, of which he died, before commencing his studies or regular duties. Several who joined the seminary feeble and debilitated, have in a short time been entirely restored to vigorous health. Indeed, such has been the result, I believe, without a single exception. That a youth may, by means of a regular system of exercise, preserve all his bodily activity and vigor, and at the same time apply himself most assiduously to study, I have never had any doubts; but if I had, the facts developed since the establishment of this seminary, would have dispelled them. Many of my pupils, and those the closest applicants to study, walk with facility forty miles per day. In the summer of 1823, several of them left Norwich at day-break in the morning, walked to the summit of Ascutney mountain, and returned to Norwich about 9 o'clock in the evening of the same day—the whole distance forty-six miles: which, considering the fatigue and difficulty of ascending and descending the mountain, (upwards of 3,000 feet high,) may reasonably be estimated as equivalent to sixty miles on the usual roads of the country. They continued their regular studies and other duties the following day. In September, 1823, a party of nearly thirty accompanied me on a pedestrian tour to the summit of Manchester mountain, in the state of Vermont, a large portion of whom traveled 150 miles in four days, and on the fourth day one of the party, a youth of sixteen years of age, walked by my side forty-five miles. On a recent excursion to the summit of the most elevated of the White Mountains, with a party of fifty of my pupils, a large portion of them, on the last day, walked forty-two miles. Belonging to this party, was a youth of but twelve years of age, who walked the whole distance, (160 miles,) carrying his knapsack, with clothes, &c., and returned in perfect health.

Since the latter part of June, 1821, the cadets, as a military corps, have executed, under my personal command, six military marches, amounting, in the aggregate, to 637 miles. Different detachments from the corps have also, within the same time, in addition to several of minor importance, performed, under my personal direction, four pedestrian excursions, for practical scientific purposes, amounting in the aggregate to 684 miles, and which, added to the former, gives 637×684=1321 miles. To this may be added an excursion to the White Mountains, whole distance 170 miles, by a party which I did not accompany, and which will make the total distance traveled in those marches and excursions, 1491 miles.

The foregoing facts are stated for the purpose of illustrating and confirming the correctness of the opinion I have so often advanced in my lectures on education, relative to the practicability, and even facility, of combining the full development and perfection of the physical powers of youth, with a due cultivation and improvement of the mental faculties. Whether a young man, who enters on the grand theater of active life, with a mind and body equally vigorous and improved, who, while he has a head to conceive, possesses also an arm to execute, will or will not possess advantages in the discharge of the various duties he may be called upon to perform, over one, who has grown to the age of manhood, puny and debilitated, destitute of physical energy, and incapable of bodily exertion, I shall leave to the sound discretion of the American people to decide.

As it respects the effect of the system on the morals of youth, I would observe, that I feel confident no one has left the institution worse than he joined it, and that I flatter myself, several have, in this respect, been improved. Next after the influence of religion, I consider habits of industry and economy as constituting the surest basis of morals amongst youth. To instill these into the minds of my pupils, ever has, and ever will be, a leading object; and I consequently shall imperatively require the strictest adherence to all the regulations bearing on those points, by all concerned. I would therefore beg leave to assure the parents, guardians, and relatives of my pupils, that the regulations prohibiting the cadets being furnished with money, otherwise than by the superintendent, or by his express permission, is to be taken in its literal meaning, (without exception,) and must be adhered to under all circumstances; and that any deviation from it will be followed by immediate dismission. I would much prefer that the great body of my pupils should enter young, and grow up under my system. The mind and body are then more susceptible of improvement, than at a more advanced period. Few, if any, vicious habits have then been formed, and the morals, under a strict and regular discipline, may easily be preserved. It is my fixed determination not, knowingly, to admit any young man of confirmed vicious or dissipated habits into the institution. I would accordingly recommend to parents and guardians not to send me any of this description; for if they should gain admission, and did not immediately reform, (which seldom occurs when the habits are confirmed,) it would only eventuate in their dismission, and consequent disgrace. It is much easier to prevent a youth from acquiring bad habits, than to correct them after they are acquired. If parents and guardians will send me their sons and wards free from habits of dissipation, immorality, and vice, I will guarantee, as far as human agency will authorize, that they shall be preserved free from such habits, while they remain under my care. Every requisite means will be used to correct the foibles and faults incidental to youth—to accomplish this object no pains will be spared. With their foibles I will bear as much as any person, but with their vices I will make no compromise. For the purpose of enabling me the more readily and the more certainly to accomplish this important object, I must request parents and guardians, if their sons or wards have foibles or faults, frankly to state them to me. On this subject there should be no reserve; as, with such information, I should know much better what course to pursue with them.

The favorable view taken of the aims, progress, and results of the scientific and military training provided by Capt. Partridge in his Academy at Norwich, was amply justified by the success of his pupils at Middletown, as practical men in various departments of business and public life.

On account of the condition on which he held a portion of his property at Norwich, Capt. Partridge was obliged to maintain there a literary institution, after his removal to Middletown. When he discontinued his labors at the latter place, and not succeeding in his plans for establishing a scientific and military school in the neighborhood of New York, he returned to Norwich, and in 1832, made preparation to reëstablish his Academy on its old basis, and with enlarged premises. With this view he erected the building known as the North Barracks, which were occupied for two years by Rev. Amasa Buck, for the purposes of a Methodist school, known as the Franklin Seminary.

NORWICH UNIVERSITY.

In the spring of 1834, a number of gentlemen associated to establish at Norwich, not an academic, but a collegiate institution, after Capt. Partridge's views, and in the autumn of that year, obtained from the Legislature of Vermont, a charter by which the petitioners were constituted a Board of Trustees of an institution by the name of the *Norwich University*. The charter further provides "that the said Board shall be required to furnish at said institution constantly a course of Military instruction, both theoretical and practical, and also in Civil Engineering, and the practical sciences generally; and the President of said institution, with the consent of the Trustees, *shall have power to give and confer all such diplomas, degrees, honors, or licenses, as are usually given or conferred in Colleges or Universities*, at their discretion; provided, however, that in so doing they shall have respect to the morals and merits of the candidate alone."

This act of incorporation named fourteen gentlemen, and provided for the election of eleven others, which twenty-five should constitute the Board of Trustees of Norwich University. The first meeting of the Trustees was held at Norwich, Vt., January, 1835. The vacancies in the Board were then filled, and the first members of the Faculty were elected, viz.:—ALDEN PARTRIDGE, "President and Professor of Moral and Intellectual Philosophy, History, Science of Government, Political Economy, and Military Science and Tactics;" TRUMAN B. RANSOM, Vice-President, and Professor of Natural and Experimental Philosophy, Mathematics, Theoretical and Practical, and Civil Engineering; M. NORAS, Professor of Ancient and Modern Languages; and FRANKLIN MARSH and I. M. HORR, assistants in the English Department. These gentlemen were authorized to form a course of study and laws for the government of the institution.

In May, 1835, the University was opened under the auspices and in the buildings owned by Capt. Partridge, with a full course of literary, scientific, and military studies. Among those enumerated in the first prospectus were Military Law, Military Drawing, Civil and Military Engineering. "Military Science being considered an important appendage to the education of every American youth is taught theoretically in all departments of the University. The military exercises are attended at those hours of the day which are generally passed by students in idleness or devoted to useless amusements, for which they will be made a pleasing and healthful substitute." "The discipline will be strict, but correct; in principle, military. It will be a great and leading object to instill into the minds of students liberality of sentiment and principles of honorable integrity and attachment to our republican institutions. Everything of a sectarian character in religion will be entirely excluded and all literary honors will be conferred in accordance with scholarship and moral worth alone."

At the close of the academic year, 1835–6, (August 18, 1836,) the first Annual Commencement took place, and the class of 1836 then graduated, consisted of one person, Alonzo Jackman, now Brigadier-General in Vermont, and Professor of Mathematics, Military Science, etc., at the University. Professor Ransom, entered the United States Navy about this time, and Mr. Jackman was appointed to fill the vacant Professorship. Soon after this, Rev. Zerah Colburn, succeeded Professor Noras. August 17, 1837, the second Annual Commencement was held, and Hon. George McDuffie, of South Carolina, delivered the address; the next year Robert Rantoul, Jr., of Massachusetts, was the orator; in 1839, John Wentworth, of Illinois, and Thomas H. Seymour, of Connecticut, were speakers; and in 1840, Benjamin F. Hallett, of Boston. The catalogues of each of these years show that the number of students, or cadets, averaged a little less than a hundred, and in all the catalogues, the regulations for the Police of the Cadets' Quarters were given in full. They provided for all the military duties of the students, for the wearing of uniform, etc., etc.

In July, 1840, the Corps of the University under the command of Captain Partridge, performed a military march across the State to Fort Ticonderoga. They were just a week on the excursion, and in that time, they marched nearly a hundred and fifty miles on foot, about twenty-five miles per day. Notwithstanding the excessive warmth of the day, and the exposure to the air of the night, with no other covering than the soldiers' blanket, the Cadets all returned in good health and spirits.

During the year 1843, several changes took place in the University. From the time Mr. Ransom resigned the Vice-Presidency, until May, 1843, that office was filled by Hon. Aaron Loveland. Mr. Ransom returned at this time, and was again made Vice-President, and Professor of Civil and Military Engineering, etc. The buildings and land used up to this time, were the property of Capt. Partridge. During May, arrangements were made for the purchase of this property by the University, but some misunderstanding occurred before this was done, and in November, President Partridge resigned, and took from the armory all the arms and accoutrements, attempted to revive his old Academy in another part of the village, and finally, when the University could not purchase his property at his prices, obliged the students to remove from the buildings. On his resignation, Truman B. Ransom was chosen President, and for the two years the institution was carried on in other buildings in the town. The Legislature was applied to, and appropriated a hundred stand of arms, sets of accoutrements, etc., for the use of the students. At last an arrangement was made with Capt. Partridge, for the purchase of his property, and the University returned to its old quarters. The number of students was small during these difficulties, but the military department was always active, a good military education was given, and men were graduated who now hold responsible places in the military service of the United States among the Federal troops.

In May, 1847, President Ransom, then Major-General of the Vermont Militia, resigned his place at the University, accepted that of Colonel of the "New England regiment," ninth infantry, and went with that body to Mexico. September 13th of the same year, he was shot while gallantly leading the charge of his regiment upon the fortifications of Chapultepec. When Gen. Ransom left, Prof. James D. Butler was appointed President, *pro tem.*, and in January, 1848, Gen. Henry S. Wheaton, of Massachusetts, was elected President, and served as such till August, 1849; he was succeeded in September, 1850, by Rev. Edward Bourns, LL. D., who still (1863,) holds that office.

Soon after 1850, the opposition to anything of a military education became very strong, the number of Cadets at this institution diminished, and the tone of the prospectus changed to suit the public. "The discipline is military in principle and form. The Cadets are under military organization, they dress in uniform, are regularly drilled with arms. But they are not made lovers of war! They are not found to adopt the profession of arms more than others of the same age, however educated; oftentimes the harmless practice of handling arms at this age, is found to satisfy the craving for the use of them, and these young men settle down into the ranks of peace more easily and more contentedly than those that have had no such training. The drill is an agreeable exercise. The system of discipline is strict, though not oppressive, its sole object is to preserve order and promote study." "The [illegible]ect is not to make soldiers, but to strengthen the body." During the [illegible] (from 1850 to 1860,) the prospects of the University were not bright. It was at once engaged in lawsuits, and troubled with debt and opposition. In 1853, it was proposed to move the University to Montpelier, but the project was finally abandoned, the last of the old Academy property was bought, the buildings were repaired and the institution freed from debt. Previous to 1850, the finances were in a very confused state. When the charter was obtained, land to the value of fifteen hundred dollars was brought and deeded to the University. The sale of this, and subscriptions from Trustees and citizens of Norwich, produced enough to purchase the North Barracks.

The money received of students for tuition was always, and is still, all used for paying the salaries of the instructors. The room-rents scarcely paid the wear and repairs of the South Barracks and the University ran slightly into debt. The State, in 1853–4, gave the institution about thirteen hundred dollars of an unappropriated school fund, and enough more was raised by friends of the University to purchase the South Barracks and pay off old debts, and put all the buildings in good repair. For several years it was obliged to struggle against a load of popular prejudice on account of its military feature, but since 1861 it has brushed up its uniform, and its Military Department no longer seeks to hide itself. No such semi-apologies for the military training of its students appear in its catalogues and prospectus for 1861 and 1862.

"The Norwich University differs from most colleges in two respects. These are its double system of study, consisting in an Academic and a Scientific course; and its department of Military Science. The Academic course comprises those studies usually pursued in other colleges; the Scientific embraces Mathematics, Natural Sciences, Belles-Lettres, Surveying, and Engineering. Four years are required to complete the former, and three, the latter course of study. Students are also allowed to take a partial course in either department. The students of all departments are regarded as equals.

"The feature, however, which more than any other distinguishes Norwich University from other Collegiate institutions is the department of Military Science and Tactics.

"Agreeably to the provisions of its charter, the students are all under Military discipline—are called Cadets—dress in uniform, and are instructed in Infantry, Rifle, and Artillery Drill, Bayonet Exercise, Fortification, Reconnoissance, Castrametation, Guard and Out-Post duty, &c., &c. All the arms and equipments necessary for drills are furnished by the State of Vermont. * * *

"The military feature of this institution is one which should particularly commend it to the notice, and patronage of the public at this time. The want of men skilled in Military Science and Tactics, to take command of volunteer forces, and discipline them into effective soldiers, has been severely felt in organizing the present army of the United States. The reverses with which it has met are, without doubt, owing largely to this cause. To guard against this defect in the future, it is now generally felt that young men should be educated thoroughly in every department of Military Science. In times of peace this knowledge would not incapacitate men for nor interfere with any other business;—while in times of war, it would become invaluable to the country in training an army for efficient service."

The following persons constituted the Faculty in 1862. Rev. Edward Bourns, LL. D., President, and Professor of Moral Sciences, Ancient Languages, and Literature; Alonzo Jackman, A. M., Brigadier-General Vermont Volunteer Militia, Professor of Mathematics, Natural Philosophy, Military Science, and Tactics; Thomas R. Crosby, M. D., Professor of Anatomy, Physiology, and Natural History; Clinton S. Averill, A. M., Acting Professor of Natural Sciences; George Baillard, Professor of Modern Languages, and Linear and Architectural Drawing; Samuel W. Shattuck, B. S., Tutor in Mathematics and Military Tactics; Alonzo Jackman, A. M., Librarian.

MILITARY ELEMENT IN SCHOOLS OF ALL GRADES.

INTRODUCTION.

In all ages and in all countries there have been educators who recognized the importance of the physical, and more specifically, of the military element in their schemes of individual and collective teaching. No higher authority in English pedagogical literature of the liberal type, can be named in this connection, than John Milton, who, in his brief but masterly outline of "a virtuous and noble education," includes this in the means of a complete and generous culture, that is "to fit a man to perform justly, skillfully, and magnanimously all the offices, both private and public, of peace and war." In the outset he demands that the number of pupils, for whose accommodations a spacious house and grounds were to be provided, should be large enough for "the convenience of a foot company or interchangeably two troops of cavalry," so that systematic exercise could alternate with the studies and diet. In his general progamme he includes studies which shall "stir up their spirits to manly and liberal exercise," and "inflame their hearts with high hopes of living to be brave men and worthy patriots." In the enumeration of studies he specifies mathematics, the practical aid of instruments in surveying and engineering, and their application to fortification and navigation. Living in the midst of a civil war like our own, when the preservation of constitutional liberty had summoned troops from the field, the shop, and the study, and placed men in command who had not been trained to the profession of arms, Milton directs or points out the value of studies, the mastery of whose general principles "may at some time or other save an army," and not let the healthy and stout bodies of young men rot away under them for want of this discipline, which is a great pity, and no less shame to the commander." In treating specially of physical culture, Milton assigns to military drill, and use of sword and other weapons, at least an hour and a half each day, that his pupils may be equally good both for peace and war. "The exercise which I commend first is the exact use of these weapons to guard and strike safely with edge or point. This will keep them healthy, nimble, strong, and well in breath; is also the likeliest means to make them grow large and tall, and to inspire them with a gallant and fearless courage, which being tempered with seasonable lectures and precepts to make them of true fortitude and patience, will turn into a native and heroic valor, and makes them hate the cowardice of doing wrong." With the use of the sword Milton would associate all athletic sports "wherein Englishmen are apt to excel." And after the day's study has been thoroughly done, "with minds in good tune and satisfaction," he would occupy the "two hours before supper in military motions, under sky, or cover, according to the season, as was the Roman wont; first on foot, then as their age permits, on horseback to all the art of cavalry; that having in spirit, but with much exactness and daily muster, served out the rudiments of their soldiership in the skill of embattling, marching, encamping, fortifying, besieging and battering, with all the helps of ancient and modern strategems, tactics, and warlike maxims, they may, as it were, out of a long war come forth renowned and perfect commanders in the service of their country. They would not then if they were trusted with fair and hopeful armies, suffer them for want of just and wise discipline to shed away from about them like sick feathers, though they be never so oft supplied; they would not suffer these empty and unrecruitable colonels to quaff out or convey into secret hoards the wages of a delusive list and miserable remnant. No, certainly, if they knew aught of that knowledge which belongs to good men or good governors, they would not suffer these things." To these school studies and practical exercises, Milton would add excursions "to all quarters of the land, learning and observing all places of strength, all material for building, all soil for towns and tillage, harbors and ports of trade. These ways would try all their peculiar gifts of Nature, and if there is any secret excellence among them, would fetch it out and give it fair opportunities to advance itself by."

The views of Milton in favor of military exercises can not be attributed to any professional bias, for his tastes and his habits of life were in the shaded walks of the academy, "contemplating the serene countenance of truth in the still air of delightful study."

The example of Switzerland can be cited on the side of their practicality, on a scale as liberal and much more popular than their author at the time contemplated; and quite recently (1871), the Federal war authorities propose that the older boys in the secondary and superior schools shall be instructed in outpost and skirmishing duties.

X. PHYSICAL AND MILITARY EXERCISES IN PUBLIC SCHOOLS.

A NATIONAL NECESSITY.

BY EDWARD L. MOLINEUX.

Major and Inspector in New York Militia.

FROM a long and unexampled period of political and commercial prosperity we suddenly find ourselves called upon to struggle for national existence, and while a noble response from the people to the necessity of the struggle has strengthened the hand of government with an intelligent army, and developed the resources of the country, yet the occasion has laid bare defects which call for correction.

Without a standing army of any magnitude we have found our militia laws defective, and have been obliged to create ourselves a military people by the sufferings and bitterness of an experience bought on the field of active warfare.

Military necessity has compelled the loss of invaluable time in the organizing and preparing of our troops, which would not have been required had we been able to meet the rebellion at the commencement with well trained officers and an experienced and carefully drilled militia.

"*The first object*," says Daniel Webster, "*of a free people is the preservation of their liberty:*" a noble truth which must speak home to the heart of every American, and if, as it is asserted, "the future life and character of a nation is to be seen in its system of schools," then we may well listen with some degree of alarm to the warnings and unmistakable evidences by which we are surrounded, that the American race is physically deteriorating.*

The question arises, has our National system of Education been such as to qualify and prepare us to maintain successfully, the noble inheritance which was won by the physical energies of the men of the Revolution, and with our success in the field of intellectual culture, have we kept the physical advantages possessed by our forefathers?

Let us not mislead ourselves in this matter, but calmly look at the facts, that as a rule, our present system of Public Education is devoted *solely* to the mental and moral improvement of the scholars, and that the encouragements and rewards held out by committees and teachers, stimulate to the overexertion of the brain, and sacrifice in too many instances, the health and growth of the body.

Although great improvement has been made of late by the shortening of the time devoted to study, and by the introduction of more frequent periods of recreation, yet still little has been attempted for giving exercise and activity to the body; this important training being left to the care of parents or the pupils themselves.

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* Miss C. E. Beecher's "Appeal to American Women," "Calisthenics," &c.

Is it not too true that the increase of ill health, broken constitutions, and early deaths, among the growing portion of our population, especially in cities, warns us, year after year, that the thirst for knowledge, and the restless seeking after mental and intellectual improvement, have been bought at the expense of the vital energies of the great body of youth who throng the colleges and public schools of our land? [*]

If any one denies this, let him visit our institutions of learning, and while he may well admire the wisdom and forethought which has established our prosperity on a noble system of National Education, he can not but notice the debility evinced in the frames of so many youthful votaries of intellectual training; the exceptions making the contrast still more strikingly painful. Then let him go to the counting-house or the close confinement of some mechanical employment, where the evils from mental activity, unaccompanied by physical recreation, are yet more strongly developed. These evils assail not only the happiness of families, but the prosperity of the nation and the well-being of the race. Is this right or necessary? Can it be avoided?

The solution of these momentous questions may well engage the serious attention of the reflecting teacher, parent and patriot; and to them we assert that, *unless physical exercises are enforced upon our system of Public School education, our intellectual culture will be of little avail, and that our nationality stands in danger of sinking a prey to designing opponents.*

That enfeebled races are invariably conquered by those more powerfully developed, is proved by innumerable instances in history. That physical training was an important branch of education among the Greeks and Romans, is well known. The system inculcated by the iron-hearted Lycurgus, among the Spartan youth, was of a nature admirably adapted to fit them for all the sterner realities of life, whilst the athletic games and exercises of the youth of Rome, comprising, as it did, walking, running, wrestling, swimming, and military drill, were the means of improving, to the utmost, their physical powers. Upon reaching manhood, the advantage of this training was indicated by the robustness of form, and the constitutional vigor which enabled them to undertake labor, fatigue and hardship of every kind, with perfect indifference.

The Spartan and the Roman soldiers were by this early training, not only qualified to surmount with ease the various obstacles and difficulties incident to a state of active warfare, but they also became gifted with precision and rapidity in every movement, and each man was likewise endowed with that confidence in himself, and that unbounded reliance upon order, subordination and combined action, which nourish audacity, yet temper it with coolness and steadiness.

Unfortunately this system, by which the vigor and valor of a Spartan or a Roman has passed into a proverb, fell into disuse, and as it was neglected for more intellectual pursuits, so the grand empires founded by its vigor crumbled before the assaults of more athletic barbarians.

The influence of health upon the faculties of the mind is acknowledged by all, and yet how few in this country devote attention to those all important exercises which are necessary to the preservation of health, and without which intellectual power can not be applied to its highest use. The talents, the experience of our best educators of youth, are taxed to devise exercises to develop the *mental* faculties, forgetting that too close application to study is detrimental to the growth of the body.

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[*] [We do not share this alarm, or believe that hard study, apart from open or secret vice, has had much, if any thing, to do with such physical deterioration as does exist.—Ed. *Am. Jour. of Ed.*]

But few thoughtful teachers will deny the extent to which this evil has reached, or be unwilling that the strain upon the intellectual powers of children, by absorbing studies, should be counteracted by cheerful and relaxing exercises by which the mind will be relieved and at the same time strengthened. The testimony of physicians, the valuable works on health by Dr. Warren, Miss C. E. Beecher, and many other able writers, furnish incontestable evidence of the necessity of systematic exercise for children. To accomplish this it is absolutely necessary to adopt it in our course of education, for in the majority of cases it can not, or will not, be attended to at their homes.

What then is the most simple, feasible and useful plan to adopt for physical exercises in our Colleges, Normal and Public Schools?

We unhesitatingly say, that the only successful, orderly, and systematic method is, *to engraft them upon the course of studies during school hours, and to carry it out under strict military discipline*; the exercises being such as are best suited to the age, strength and capabilities of the pupils, namely: calisthenics and walking for the girls and younger children, and *military exercises* for the elder boys.

Let not the kind hearted parent exclaim against his boy learning the military drill, for fear of his acquiring a taste for warfare; or the lover of peace imagine we would re-establish the stern laws of Lycurgus. We would have moderation in this respect as in mental studies, and while we would not, as some may imagine, displace the bust of Howard in our school rooms for a Napoleon, yet we would impress upon the minds of boys the image and example of Washington, and in cultivating their intellectual faculties, likewise prepare them in mind and body to develop in manhood those virtues and powers which constitute a true and noble citizen;—a sincere love of country, of national probity and justice, beyond selfish considerations or personal aggrandizement. They should be brought up to a sense and knowledge that it will be their honorable duty and privilege to protect their native land, that she fosters and educates them in their youth, and that upon their manhood her nationality depends.

We can never become an aggressive military people; the fields for successful enterprise in art, science, commerce and agriculture, are too broad and inviting to render military pursuits very attractive, and unless we cultivate such exercises and discipline in youth, they will be, as they have been, neglected when engaged in the active pursuits of business. The clear, common sense of the American parent will acknowledge, not only the national necessity, but the moral advantages of this; for what fond mother is there but would prefer to see in her son a manly, patriotic spirit, rather than a timid, mercenary one, which, shunning danger, would sacrifice the honor and greatness of his country to the base love of gain and ease.

We have suggested that the exercises be conducted under strict military discipline, because it is impossible for a large body of children to be exercised in the usual school limits, unless the greatest decorum and order is observed; and if conducted under the supervision of a teacher, dangers and accidents will be avoided, which always occur when children are rash and thoughtless in attempting to accomplish too much. Thus conducted, they will prove an invaluable aid to the teacher in the enforcement of discipline in the school room, and teach that invaluable lesson which it seems so difficult for children to learn,—unhesitating obedience.

For the advantages of this system let us examine the practical testimony afforded in the European schools, where considerable attention has been paid to this important matter.

On the continent the advantages of physical training are appreciated to their fullest extent, especially in the Industrial Reform schools, where the admirable principle has been adopted of teaching "what they will have occasion to use when they become men,"* and thus render them useful members of society. To Dr. Barnard's National Education in Europe, we are indebted for the following extracts and illustrations of this position.

In the Reform School of Rauhen Haus, near Hamburg, "they are taught to develop their bodily and mental powers in various practical ways; to use the fire engine, to swim, to save persons from drowning, and use remedies to recover them, to climb a mast and handle the sail, of a ship. They act as a jury among themselves. Their chief reward is to be enrolled in the table of honor. In the great fire of Hamburg, their conduct was physically, as well as morally, heroic, and while bravely saving life and property, they steadily refused rewards." Parents who, perhaps justly owing to the numerous accidents in Gymnasiums, are timid of their children becoming injured by these exercises, should carefully read the system pursued in Fellenberg's celebrated establishment at Hofwyl. "A great variety of exercises of the body and the senses are employed, so that every boy shall acquire a knowledge of his physical strength, and attain confidence with regard to those efforts of which he is capable, instead of that foolhardiness which endangers the existence of many who have not learned to estimate their own powers correctly." At Ruysselde, Belgium, the following plan was pursued: In summer, from 5½ to 6½ A. M., Exercises and Manœuvres; from 7½ to 8¾ P. M., Gymnastics. In winter, several hours were devoted to these exercises, and the result found (as in this report,) was, that "rickets, scrofula, want of elasticity in the limbs, difficulty of walking, all rapidly disappeared under the drill, which confirmed the health and increased the strength and activity of the children, and accustomed them to discipline. It predisposed the pupils to sleep, and was an effective safeguard against shameful habits and secret vices. The battalion movements were performed with as much precision as that of the army, a platoon armed with condemned carbines, marched at the head. The bayonet exercises and skirmishing were as good as play to the boys." A remarkable instance of the moral effects of military discipline upon the lads of the *Colonie Agricole*, at Mettray, is related by M. Demetz, and was published in Barnard's Journal, Vol. 1, p. 623. "During the revolution of 1848, a band of workmen came to Mettray, with flags flying and trumpets sounding, and meeting the youths returning, tired from field labor, their pickaxes on their shoulders, thus addressed them:—'My boys, do not be such fools as to work any longer. Bread is plentiful; it is ready for you without labor.' The *chef*, who was conducting the boys, and who behaved with the greatest calmness and tact, immediately cried, 'Halt! form in line.' The lads, being accustomed to march like soldiers, immediately formed. The *chef* then said to the men, 'My friends, you have learned to labor; you have a right to rest; but leave these lads; let them learn now, and when their turn comes they may rest as you do.' The men gave way, the youths marched home, and Meltray was saved,—saved, as I believe, by our habit of military discipline." It was the heroic exertions of these young *colons* during the inundation of 1856, which won for them the praises of all France. These instances might be multiplied, but are sufficient to show the moral and physical benefits of military exercises and discipline upon boys, even of the lowest class.

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* Aristippus.

The governments of Europe being upheld by the bayonets of large standing armies, and requiring, as they do, in many of the kingdoms, the compulsory service of all young men, renders it unnecessary for the daily public schools to teach military exercises to that extent, which it is well for our Republican government to do. Yet in Europe they watch with the greatest assiduity and care the bodily powers of the children, knowing its great advantage not only in health, but the maintenance of order.

In Great Britain much interest has of late been evinced on this subject, and Mr. Edwin Chadwick becoming convinced that the studies and confinement in their schools were generally prolonged beyond the powers of the children, and in violation of the laws of health, devoted himself to collecting testimony respecting the advantages of the military drill upon the health of children. His investigations have elicited much valuable information, the more interesting to us as they mark its advantages to a nation which, like our own, depends for its defence mainly upon a volunteer force.

The following synopsis of his pamphlet we extract from the N. Y. Evening Post, November 1st:

Mr. Chadwick considers "In a sanitary point of view that a systematized drill is good, and for defective constitutions requisite for the correction of congenital bodily defects and taints, with which the youth of a very large proportion of the population, especially among the poorer town populations, are affected: and that for these purposes the climbing of masts, and other operations of the naval drill, and swimming, are valuable additions to the gymnastic exercises of the military drill, and when properly taught are greatly liked by boys. From a moral point of view, also, this drill will give the pupil an early initiation into all the acquirements of discipline—namely, duty, order, obedience to command, self-restraint, punctuality and patience."

The evidence furnished by English drill officers shows its national value, and "That at school it may be taught most economically, as not interfering with productive labor, and that thirty or forty boys may be taught the naval and military drill at one penny farthing (two and a half cents) per week per head as cheaply as one man, and the whole juvenile population may be drilled completely in the juvenile stage, as economically as the small part of it now taught imperfectly on recruiting or in the adult stage; and that, for teaching the drill, the services of retired drill sergeants, and naval as well as military officers and pensioners, may be had economically in every part of the country.

That the middle and higher class schools should have, in addition to the foot drill, the cavalry drill, which the parents of that class of pupils may afford.

That the drill, when made generally prevalent, (without superseding,) will eventually accomplish, in a wider and better manner, the objects of volunteer corps and of yeomanry, which, as interrupting productive occupations now becoming more absorbing, is highly expensive, rendering all volunteer forces dependent in fitful zeal, and eventually comparatively inefficient; that the juvenile drill, if made general, will accomplish better the objects even of the militia; that the juvenile drill will abate diffidence in military efficiency, and will spread a wide predisposition to a better order of recruitment for the public service, will tend to the improvement of the ranks of the regular forces, whether naval or military, and will produce an immensely stronger and cheaper defensive force than by the means at present in use or in public view.

And, finally, that the means of producing this defensive force, instead of being an expense, will be a gain to the productive powers and value of the labors of the country."

Lieutenant-General Shaw Kennedy, in a letter expressing his high approval of the plan, states, "that the inferences drawn can not be controverted. He is of opinion that if the measure is carried out it will be the means of bringing two million of men actually under arms in Great Britain alone, that is, excluding Ireland. He conceives that the effects of military drill and exercises, and the use of fire-arms taught at schools, would never be forgotten; that a youth so trained would, at any future period, with a slight degree of practice, renew his knowledge of what he had been taught."

Nor has the training of a better class of seamen been neglected. This is of vital importance to the well-being of a commercial people, and it is well for us to see what steps England is taking in the matter.

"For the purpose of giving instruction in the naval drill, old masts and tackle have been obtained for some of the training schools in England, and Mr. Taffnell has received expressions of satisfaction from naval men of the way in which some of the boys have by these means been tutored as seamen in pauper schools. In order to form sailors, it is necessary to have masts and sails rigged in the playground, and a regular seaman must be engaged to drill the boys.

Mr. Baker has observed that the naval drill as given at Greenwich, is highly effective. "He states that he was on board the Ganges and the Conway at a time when many boys came on board who had been taught the naval drill at Greenwich naval schools; and that they proved to be as ready and well trained as man-of-war's men; they were clean and orderly, and as a class were first-rate seamen, becoming petty and warrant officers in greater proportion than others."

Of its consequence upon the national health and industry, "Professor Owen has stated that even in the best-warmed and ventilated schools, five or six hours' enforced stillness of growing children is a violation of the primary laws of physiology; whilst Miss Nightingale and others agree that, under the present system, children are placed under conditions which impair good bodily health and generate epidemic disease. Mr. Rahnson, a school commissioner at Amsterdam, states that the physical evils attendant upon the present amount of sedentary confinement in schools, required from young children, is beginning to attract attention in Holland, and that they have under trial a system of exercises for schools advocated by Dr. Schrieber, of Leipsic. 'The chief question,' says the latter gentleman, 'is, How are our children to be brought up? Is it according to the laws of nature? The answer is, No; or we should not see so many children who were rosy and healthy before going to school, become pale and bloodless after school has begun;' and he prescribes the limitation of the hours of school confinement.

Mr. Robert Rawlinson, civil engineer, gives the following as his opinion of the advantages of school drill in connexion with manual labor:

"In my opinion, based on experience and observation, I think school drilling and training would prove of the utmost consequence to the boys in after life. I may give a few instances. In all engineering and building, tradesmen are frequently required to use their strength in concert, lifting, carrying and drawing; men, to use their joint strength not only effectively but safely, must have confidence in each other. Two trained men will lift and carry more easily and safely than four untrained men. I have frequently seen trained men weed out unskilled men where heavy lifting has been required, because they dare not risk the danger arising from unskilled strength, and few have performed with more safety work which would have been lighter and easier if all had been equally skilled. Men frequently reject the assistance of unskilled men, as there is absolutely danger in having them near. Frequent accidents arise from using men unskilled in lifting, in hoisting, and at capstan work. * * * Boys should not only learn to march, but to lift, carry and pull in concert. There are many necessary feats of strength in all trades, which are more matters of knack and tact than of brute strength. Brute strength frequently fails to do that which, comparative weakness can accomplish easily with skill and confident concert. There is no regular system of training in concert to use human strength in the best manner in any trade, so far as I know; acting in concert is a matter of necessity, and practice gives facility and confidence. Drill and training would probably double the effective human power of any establishment, especially if numbers are instructed in joint feats of strength. That which is taught to youth is never forgotten in after life."

"As regards its fitness as an appendage to the highest branches of education, we have the testimony of experienced examiners at the University of Oxford, England, who state that six hours mental work, instead of ten or twelve, for adults, was the time of the great majority of the prizemen; and it was always found that those who were the foremost in mental labor were commonly the foremost in boat-rowing and physical exercise. The Vice-Chancellor of Oxford testifies that the institution of the systematized exercise of the volunteer drill in that college had been attended by an improvement of the mental labors, and of the whole of the order and discipline, as well as of the health of the University; and that, encouraged by these results, he was considering of making provision for cavalry exercises."

Mr. Chadwick has also furnished incontestable proofs of the absolute necessity of more active physical training for females and of its bearing upon the future welfare of the race. But this subject has been rendered so familiar to American readers by the able pen of Miss Catherine E. Beecher, that we need not touch upon the European view, except to say that the noble labors of Professors Ling and Branting, of Sweden, have been ably seconded by very many of the governments of Northern Europe, where a method of gymnastics for females, has been systematized and practically adopted. From this brief sketch of the practical working of physical military exercises in Europe, let us turn to what has been accomplished among our own countrymen, whose activity in behalf of public education called forth the compliment from Prof. LeRoy, which we wish was better deserved, especially by the class which he specifies.

that "the improvement of schools is, so to speak, the fixed idea, the constant preoccupation of the statesmen of America."

We have indeed a noble and liberal system of education, but we would see its fostering care so extended as to invigorate the bodies as well as develop the mental faculties and intellectual powers of the pupils. The military exercises would best accomplish this, and at the same time form our public schools into A NURSERY FOR A BRAVE AND EFFECTIVE MILITIA.

Early in October last a communication was addressed by the writer to the different governors, and various other persons connected with the executive departments of the Northern States, in regard to the advantages to be derived from the introduction of infantry drills in the public schools, and by early preparation in school-days to strengthen the *militia* of the different States. At the same time it was placed before the New York and other City Boards of Education, and referred by them to special committees. The subject was also agitated through the columns of the daily press. The warm responses which have been accorded to these communications, prove the deep interest which is felt in this important matter, and it is to be hoped by the time this article appears in print,[*] some legislative action will have been taken.

In New York, the energetic Judge Advocate General, William H. Anthon, being engaged in a report upon the militia laws, and taking a warm interest in all matters relative to the efficacy of the militia, thus speaks of the importance of some alteration in the present system, in a letter addressed to Mr. Curtis, President of the Board of Education in the city of New York:

"The entire system, in my judgment, needs revision and reform, in order to make the militia what the Father of the Republic intended it should be.

It has been suggested by several persons, and among others Col. Richard Delafield, U. S. A., and Maj. E. L. Molineux, that an excellent foundation for an improved militia system would be the introduction of 'The Manual of Arms,' and 'The School of the Soldier and of the Company,' into our public schools.

I am disposed to consider these suggestions as valuable, and shall feel obliged to you if you will, as early as may be convenient, inform me how far you deem them practicable, and how they may be most conveniently introduced into the institutions under the charge of your Board."

Mr. Curtis, whose personal observations on the European school systems, and whose long experience at the head of the Educational Board of the largest city in the Union, renders his views of the greatest value, replied:

"It has been my opinion for years that military instruction should, under certain restrictions, and to a certain extent, be given to the older boys in all the schools and institutions that are supported or draw funds from the public treasury. It is but just to the State whose munificence sustains these schools, that the pupils should be instructed in those branches of knowledge that will make them useful and effective in defending and protecting the State. A well organized militia, receiving from year to year into its ranks the disciplined and instructed youth who have passed through the public schools, and to whom the duties of the soldier are familiar, will always be sustained by the public confidence and esteem."

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[*] Written December, 1861. Recommended by Governors Andrew and Morgan in their messages in January

Military discipline and exercises are by no means an untried experiment in the annals of American education; some of our best private schools and institutes having long since adopted it, and with a good degree of success as it will be our endeavor now to show.

To the admirable regulations of our National Military and Naval Academies, we need not refer; the systematic course pursued by them for the development of health, for discipline of mind and body, being well known to the majority of our readers.

One instance which came under the writer's personal observation, will sufficiently illustrate the dependence which can be placed upon well-drilled boys in case of emergency.

In April last, when Washington was defenceless, Baltimore in riot, and all Maryland in a state of revolt, communication being cut off at Annapolis, there was great fear of attack upon that important strategetic point. The pupils were prepared for any exigency, and slept with their loaded rifles over their cots. At an alarm of a night attack, there was no hesitation among those gallant little fellows. They were up directly; fell in their ranks and off at a *double-quick* for the point of danger, in an almost incredible short space of time. The elder boys dragged their howitzer with them. Had an attack taken place, those pupils would have given a good account of themselves and have stood their ground with courage and steadiness. The secret of this is the *discipline*, for which they are indebted to the assiduity of their brave and experienced superintendent, Captain Blake of the Navy.

Let us read the opinion of this able officer in respect to the applying of this *discipline* to public schools:

"My experience at this institution long since impressed me with the importance of this subject, and I intended to have given my views publicly, but you have left nothing more to be said upon it, and I can only hope that those who have the control of our public schools will view the subject as we do. We have received about a hundred and forty acting midshipmen this year, some of them very young, and although they have not been here two months, they present a beautiful example of such results as the system would produce all over the country."

It must be acknowledged that the States now in rebellion have devoted much more attention to military instruction in special schools, than we have, many of them pursuing the European plan of State Academies devoted to military science Thus while we have been obliged to *create* officers from the small nucleus afforded us from West Point, they have had the students from State Colleges to officer their regiments.

For a long time back Virginia has annually expended upon her Military Institute nearly $50,000; South Carolina, $30,000; Kentucky and other States have likewise institutions, founded in whole or part, upon a military basis.

Although several attempts have been made to obtain legislative action for similar institutes in the Northern States, they have not, up to the present time, been successful, owing, we think, to the groundless opinion that it would prove a heavy tax, without a corresponding advantage. We shall endeavor to prove in this article how economically an academy could be supported. It is, therefore, to private enterprise, we are indebted for any experiments which have been made in this respect.

Several of our best boys' boarding-schools in this portion of the country, have for a long time employed a military instructor for the pupils and been managed on a semi-military organization; they have been well sustained by the patronage of the public. We instance two or three schools of the present time.

Dr. Russell's Collegiate and Commercial Institute of New Haven, is one which has already been of national advantage to us, for according to Prof. Daniel C. Gilman, "the scholars were of great service in drilling the recruits of Connecticut at the outset of the war, and many of them now hold important posts in the army. The scholars formerly trained as infantry and are now at artillery practices." Mr. Gilman very justly observes, that in a country like ours with no standing army, every able-bodied man should learn to bear arms, and there can be no cheaper or efficient way of doing this than by teaching boys in schools.

The Eagleswood Collegiate and Military School, near Perth Amboy, N. J., has been recently organized on the military plan. The scholars are formed into a battalion under a superintendent and colonel commanding, the rest of the officers being taken from the scholars. Tho State of New Jersey has supplied the institute with arms, and the military regulations apply to the conduct of the pupils in their general deportment. The reasons given for employing this discipline are the same that apply in every instance, that it is the most orderly and effective, increases the energy, vigor and manly attitude of the boys, and induces cheerful obedience.

To Major J. P. Prall, Military Instructor, we are under obligations for the following account of Mr. Tracy's *Military Boarding School, at Tarrytown, N. Y.*:

"There is no question, in my mind, of the utility of military instruction in schools, and if I had any doubts, they would speedily be removed by the fact that the very exigency you propose to provide for is being developed, only in a less degree, in the volunteer army now fighting our country's battles. There are a number holding honorable positions in the army of the Potomac, and elsewhere, who have more particularly come under my own observation, that have passed through a course of similar instruction to what you propose, in private military boarding schools, who give evidence of superior knowledge as soldiers, and with a little preparation were *ready* to assume the duties and responsibilities of the field and camp. They have more particularly distinguished themselves as drill masters and thorough disciplinarians, the very ground you proposed to cover in your articles in the N. Y. Tribune of Nov. 20. I have especially noticed, of late, the facility with which youth acquire military knowledge since the outbreak of the rebellion, when the occasion seems to impress them more strongly with its importance.

Independent of the military availability of youth thus instructed, the promptness and precision that the system induces is apparent. A simple sketch of the routine of duties in a school over the military department of which I have the supervision, may give an idea of its utility, as well as its usefulness. This department is conducted in such a way as to make the military feature an auxiliary to the classical and preparatory. Part of two days in each week is more especially devoted to military drill and instruction, when the flag is raised on the flag-staff on the parade ground with the roll of the drum, and the sunrise gun is fired. At sunset it is lowered with the same ceremony by a file of boys, in charge of an officer, or non-commissioned officer. On other days of the week a drill of about an hour is held, in command of the company officers,—always in presence of the Principal. The utmost strictness is required in all the military features. The "Assembly," when beaten for drill or parade, occupies one minute—*immediately* after, "*fall in*" is given by the orderly, when *entire* silence is required. Boys being naturally playful, much more care in these particulars is necessary than in grown persons. *Tattoo* begins at 9 o'clock precisely, when the minute of its duration expires every cadet is required to be in line for "roll call," and the three squads, each in charge of an officer, are marched by flank to their quarters, (the whole not occupying more than two minutes.) They halt opposite their beds, and salute their officer as he passes out;—in five minutes the lights are extinguished. Their clothing is uniformly arranged, and in such way that if called up at night they can dress without lights and without loss of time. The officer in command of each, being held responsible for the condition of his squad. The military instructor inspects at unexpected times, and directs the chiefs of squads to report the result to the officer of the day, through whom all reports to the Principal must be made at 9 o'clock A. M. each day. *Revielle* at day break, and they march by squads to wash room, where twenty minutes is allowed for necessary ablutions, blacking boots, &c., and then the march to the Assembly-room for "*roll call.*" Inspection of boots twice a week, at unknown times.

The squads for the *mess-room* march in order, filing each side of the tables, face inward, and "*sit down*" by command; *rise*, march out and *break ranks*, observing the same military precision. These various duties are performed with pleasure and pride by the cadets, and the same promptness and regularity is apparent in every movement.

The *armory* and arms are in charge of a detail of four, and are inspected in turn on the roll, each week, and reports are made of disabled pieces, and the general condition of the arms and armory, to the officer of the day, and through him to the Principal. The various reports are embodied into one, by this officer, so that the Principal is not burdened with the details unless he calls for them.

Orders are issued from time to time, by the Military Instructor, and engrossed in a book, which is open for inspection of visitors, announcing promotions, results of inspection, and noting cases of military merit and demerit, &c. This has a tendency to stimulate to exertion, and to efforts to avoid unfavorable notice.

Military classes 1st, 2d and 3d, graduated according to military merit are established, and promotions to them made after strict examinations. All company officers are selected from the 1st class.

A class of Honor, consisting of members of the First class who have escaped being reported for disobedience and improper conduct, is also formed. A given number of military demerits reduces a cadet, and the badge which is worn on the left breast is taken from him. He may, however, be reinstated.

Military demerits are punished by military penalties.

Cadets are taught to observe the position of the soldier when off duty also; the benefit of this is very marked. When the machinery is properly set in motion, the labor generally attending the minutiæ of school duties is greatly reduced, and much more pleasantly and thoroughly performed.

I have not entered into all the details, (and have given the military only) but enough to give a general idea of the plan adopted by this school. There are different modes in use in other schools. Some partaking more of the military, and some less. I think there is danger, often, of *too much* military being engrafted so as to make it burdensome; great care should be taken in this particular, as the cadet wearies of it when the novelty is past."

Mr. N. W. Taylor Root, in his admirable book on School Amusements, furnishes practical testimony "that it fosters habits of promptness, exactness, and unanimity of action; teaches implicit obedience to commands, erectness of carriage, a neat and clean appearance, and a gentlemanly and respectful behavior."

It will thus be seen that a system of military drill has been tested morally and physically, in private schools, and found of decided advantage.

Why should these benefits be denied to the pupils of Public Day Schools?

Why should this vast defensive power be lost to the Government?

As a national military necessity; as a protection to the health and constitutional vigor of American youth; and as a powerful agent upon their moral behavior, their energy, self-reliance and spirit of enterprise, let PHYSICAL TRAINING BE ENGRAFTED ON THE COURSE OF STUDIES FOR ALL THE PUPILS EDUCATED AT THE EXPENSE OF THE STATE. Let us not hesitate at the magnitude of the undertaking, for it is a *necessity*, and under proper regulations and restrictions can be successfully and economically accomplished.

The greatest difficulty to be surmounted is the successful working of a system at once applicable to the requirements of a small district school, with a limited number of scholars, attending only at certain seasons of the year, and of those of the larger cities, with numerous schools, in which a great number are under instruction.

Let us commence at the foundation, in the Primary Schools.

The moment the child enters the school care should be taken that the mental exercises which are given should be relieved by frequent intermissions for running and playing, under the supervision of the teacher. This we are glad to say is the case in very many of our best primary schools; but it is when the child becomes more advanced, when there are lessons to commit to memory at home, that some simple physical *exercises* should be taught him every day; exercises calculated to develop the growth and expand the muscles. The calisthenics recommended in Miss Beecher's work are excellent, simple, and easily fitted to the limits of the school house. The report of Mr. W. H. Wells, Superintendent of Public Schools for Chicago, for 1860, gives some interesting particulars of simple exercises which have been attempted in that city.

There would be but little difficulty experienced in selecting movements and gymnastics suitable for the strength and ability of the classes of younger boys and girls under instruction, provided the method was established as an imperative duty which *must* be regularly put in practice, and that no lack of interest on the part of teachers, or laziness of the pupils would be accepted as an excuse for non-compliance with the regulation. We trust if Physical Training is carried out in our system of education, that a carefully prepared Manual of all kinds of exercises, embracing the military drill, will be compiled for the use of schools; in a word, a text-book to which our teachers can turn with confidence to find exercises suitable for all classes of pupils.

From the Girls and Primary, we pass to the Boys Grammar departments, for which we propose military exercises, as being the most economical and advantageous for public schools; for *tactics* manœuvre large bodies in a small space, in an orderly manner, whereas gymnasiums are too expensive, and can not be made large enough to accommodate many scholars at once. This opens to us our most difficult, but at the same time most useful, field for prompt and energetic action.

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* Such a Manual will soon be published by J B Lippincott & Co., Philadelphia.

Suppose we take for an example one of our large cities. The lower and female departments having simple physical exercises in use, it is wished to introduce military exercises into the grammar schools. Let us see how simply it can be organized, and how far it is possible to extend these studies if desired.

The following interesting letter from the Mayor of Bangor, will show the movement in that city, an example well worthy of being imitated.

CITY OF BANGOR,
Mayor's Office, Dec. 21st, 1861.

DEAR SIR:—In reply to yours of the 19th inst., I would say that, upon my recommendation, through a communication I made to our City Council, on the first Monday of the present month, an Order was passed directing the military drill to be introduced into a portion of the Public Schools of this city.

I had given the subject some thought and investigation, and was prepared to recommend the adoption of the drill for the physical training, no less than for the military instruction it might impart. The prevalent idea that education consists in training the intellect only, is gradually becoming superseded by the more rational theory that true education consists in training the moral and physical, no less than the intellectual faculties.

For the physical training of boys, I think the military drill has much to recommend it besides the military instruction it imparts. It will tend to give them a better command of their muscles, and impart a manly gait and bearing. It will also, if properly conducted, teach them self-control, and give them true ideas of order, discipline, and subordination, and whilst it will relieve them from the monotony of their ordinary studies will, by a grateful change, enable them to return to them with renewed interest.

We are entering upon the new experiment with caution, and have commenced by devoting an hour, twice a week, to the drill. We began in the school rooms, but found, after a few lessons, that the space these afforded was too small, and for the present shall use the large Gymnasium Hall. In summer, the grounds in connection with our school houses may be found well adapted for the purpose.

The boys, with scarcely an exception, manifest much interest in their drills, and receive the instruction much more readily than men. Two or three of our public spirited citizens, well qualified for instructors, have generously consented to devote the necessary time for drilling the boys, for the present winter, without compensation.

Some of our teachers are also disposed to qualify themselves for drill masters, and we are thus enabled to try the experiment without much expense.

I have had no communication with Gov. Washburn in relation to this subject, and was quite unaware of your interest in the matter. I however noticed the article in regard to it in the Evening Post of Nov. 8th, and was gratified with the important facts which it contained. I shall be glad to receive any further communication you may make to the public on this important subject, and should you wish, will be pleased to communicate to you the further progress of our experiments.

Yours respectfully,

ISAIAH STETSON, Mayor

EDWARD L. MOLINEUX, Esq., New York.

To establish thoroughly and economically this military culture, the Board of Education should appoint some competent person as Chief of the Staff to organize and carry out a system of instruction and drill; he to have under him two or three assistant instructors of experience, under whose guidance *a teacher, or teachers from each school*, should be fully instructed in the tactics, so as to be able to superintend the drill of the boys, which should always take place during school hours, and thereby form a recreation from mental study, and not encroach upon their play time. These are the only persons connected with the department beyond the scholars themselves, as it should be managed on the principle of obtaining *the whole working force* of the military organization from among the pupils.

The grammar department of each school should be formed into a company, or where the size of the school rendered it necessary, two companies: the officers to be selected from the most deserving and competent boys.

The officers thus selected to be instructed theoretically and practically by extra drills, in their respective duties. This would not occupy much time, and any boy objecting to devote this time would not be worthy of holding his position, and should be replaced by some one more deserving. Every school should possess within its limits space for a parade ground and for a few simple fixtures for gymnastic exercises. In stormy weather the exercises could be carried on indoors; for the drill possesses the advantage of affording exercise to a great number in a *small* space without disturbance and noise.

No uniform would be required, and the only expense would be the loan or purchase of 500 or 1000 short muskets, which could be used in turn at the different schools for drill or parade. A simple musket can be manufactured very cheaply, which will answer for all purposes.

The care and cleaning of the arms, the escorting and carrying them from school to school, or point to point, as required, should be the military duty of the pupils; thus expense will be saved, and the duty of prudent soldiers to take care of their equipments and do their own work inculcated.

These different school drills, always in charge of the teachers, should be visited in turn by the instructors, who would exercise a close and careful supervision over them.

Every ten companies or schools should be formed into a regiment, officered by those selected as the most capable, and who had passed the necessary examination.

Occasionally on Saturdays the regiments, in rotation, should be exercised by the instructors, in battalion movements, field manœuvres, skirmish drills, camp duties, &c. These Saturday exercises should not be compulsory, but would be eagerly looked for by the boys as an amusement.

In the proper seasons they could be marched to the suburbs for their exercises, and thus a pleasant holiday, with healthy amusements, be given them under proper guidance. Any father will appreciate the advantages of such exercises and enjoyment to his boys.

In the summer season it should be found out which of the boys could not swim, and had no parents able to teach them. All such should be classed together, and means taken to instruct them in this most requisite art.

If found desirable to teach them to move together in *large masses*, (in which our militia are certainly deficient,) it can be accomplished by organizing two, three, or more regiments, into a brigade, to be commanded by the chief instructor, he selecting for his *staff* the most intelligent of the scholars who could relieve him of much of the labor which the systematic working of this large military department would render necessary. Thus those assigned to the staff would be learning the technicalities of the department and the duties of aids, secretaries, &c.

These staff officers, and any other of the pupils who showed a decided talent, should be assisted in acquiring knowledge in the military science by means of lectures, &c., from the chief instructor. An orderly system once organized, with the incentive to improvement by promotion for correct deportment, and of military disgrace for ungentlemanly and unsoldierly conduct, would soon render this military instruction of great assistance to *teachers in the schools*. Let the boys understand that disobedience or improper behavior debarred them from military honors and the whole tone of their conduct would be improved.

Of the exigencies of this war, if complicated by foreign interference, it is impossible to foresee, but every one is aware of the importance of early training upon the destinies of nations, and but few will deny the value of a well-trained battalion of selected elder boys, in case of INVASION or trouble, by their relieving the fatigue of regular troops in mounting guard at the least exposed positions, at the camps, on baggage, or for convoys; likewise to act as drill-masters for the recruits.

The above plan, which was submitted to several Boards of Education last fall, was offered as being the best adapted for *immediate use*, and is therefore provided for the instruction of the *teachers*. If, however, the *Normal Schools and Colleges* would provide systematically for this instruction, it would be far better as they are the proper fields for *permanent benefit*, as each graduate would there become fully prepared to instruct in these exercises in the public schools.

The views of the Hon. Joseph White, of Massachusetts, respecting military studies in colleges, are well worth noting. He says, "let the drill be regular and compulsory, taking the place of the very irregular and insufficient physical exercises now taken, and our colleges would be vastly improved in their educational power, and the commonwealth would in a short time have a numerous body of educated men well skilled in the military science and art, who will become teachers in our lower grades of schools and in our military companies and associations, and be competent when the alarm is sounded, to lead our citizen soldiers to the field." New Jersey has just offered a noble example by making an appropriation for military instruction in her State Normal School.

But we must look at the practical working of physical and military training in small district schools. Of necessity they are far behind, in intellectual culture, those in the cities, and owing to the small and uncertain attendance, physical and military drill would also have to be simplified. The duties of a country life are such as not to render these exercises so necessary on the score of health, nor are the pupils wearied by such constant application to study. But how beneficial it would be in smoothing the rough, clownish manners of the country pupil by teaching him the *position of a soldier*, and correct *walking*. In respect to this, it should be the duty of the trustees to see that the drill was taught as far as practicable to the boys (calisthenics to the girls) by the teacher himself, who, if he were not already instructed from a Normal School, would find but little difficulty in mastering the details of tactics sufficiently for his purposes. With as small a number as twelve boys, company and skirmish drills could be taught; the latter is admirably suited for country schools, and would be a delight to the boys. If near the water they should be taught to swim.

It is thus we would teach our public school boys when they reach a certain age, to act together as citizen soldiers and be prepared when called upon, to do yeomen service in the country; to make it their pride as well as their duty, to defend the Country and State which so liberally educates them, let us cultivate in them a lofty and noble patriotism, which shall have its effect upon future generations, for it is upon these qualities, their intelligence and enterprise, aided by *physical strength and health*, that the FUTURE of our country depends.

Although a course of military training in the public schools would soon furnish our State with an intelligent class of soldiers and line officers, yet the *art* of war in many of its branches, such as artillery, engineering, &c., requires a scientific education, which can not be given in a private institution. Our colleges undoubtedly could, to a certain degree, supply this want. New York city possesses in its Free Academy a college which needs but the addition of two or three professorships to carry out in part this requirement, yet a *State Military and Scientific* College seems a necessity to which early attention should be given, but to prevent its becoming a tax upon the State, it should be managed somewhat upon the plan of the Polytechnic of France, namely, that pupils at large may be admitted upon passing an examination and paying the annual fee.

Offer inducements in the way of superior education and careful training, and sufficient income would be received from the *paying* scholars to cover the expense to the State. Thus, from this college, might annually graduate men educated for the most scientific and skillful pursuits of life, and who, in time of war, would richly repay the State for the care devoted to their culture.

As an incentive to the public-school boys, several of the most deserving should annually be sent to this college by the State, and to the National Military and Naval Academies.

There is yet another important matter to be considered in physical exercises for public education, more particularly in sea ports, viz., *Naval Training*.

A late report of the Shipmaster's Association has shown us that the reputation of our American vessels is deteriorating so rapidly, that unless something is done, quickly and effectually, to provide a remedy, foreign vessels will supersede ours in freighting. The necessities of our navy are too well known to need notice here, and surely these evils which assail the country at this trying moment of peril, should arrest attention.

In large seaboard cities the naval training school, which has worked so advantageously in England and Belgium, could be established very economically by the fitting up of some hall, at a slight expense, with spars, sails, &c. Here of an *evening*, lectures and classes for instruction in navigation and seamanship could be formed. This would be the means of improving our sailors and of forming useful citizens from those who now idle away their time around the streets and docks. The expense would be but light, and the advantages obvious to our merchant marine and navy. This would soon improve our class of sailors and officers, reduce the rate of insurance upon American vessels, and relieve us from the stain which is being cast upon us as a commercial and naval power.

The evening schools of New York city cost $73,000 per annum; a small per centage of this sum would place in successful operation an *evening nautical* school, which would enable, in less than three months, American sailor boys to acquire sufficient knowledge of navigation to aspire to the quarter deck. The handling of heavy guns and the principles of naval gunnery could also be taught. If a war with Great Britain breaks out, are we to be found slumbering in this respect, and must we wait for the *first gun* before taking active measures!

We are a peace-loving and domestic people, and we have indulged in the delusive fancy that peace was to shine over us forever, until rudely awakened from our dreams by a formidable attack at the very foundation of our nationality. Every family circle is represented in that mighty army which is battling for the Union, and we know that much of the suffering caused to our brothers by this new and unexpected calling, is due to the defects of their physical education, and to the want of a sufficient number of well trained officers. But the war is upon us and we must meet it as may best become a free nation and be better prepared for the future.

It is the proud boast of England that in time of war she is "Ready, aye Ready," but a much prouder and nobler cry for us would be, the prompt "Here" at the roll-call of our militia when summoned, like the minute men of the Revolution, to the defense of the country. We want no large standing army. In times of peace let our merchants, artisans, farmers, and mechanics, enrich and develop the resources of the country. It needs their industry and will amply repay their toil. But let them be trained and educated from school-days to their military duties, and at the first note of war let that response of "Here" come cheerfully from our rich prairie lands, from our counting-houses, from our machine shops, from the decks of far off vessels and from our public schools,—one mighty cry of POWER and SELF-RELIANCE from a noble militia, possessing a thorough *knowledge of its duties;* intelligent and earnest in the right; patriotic and strong in its devotion to freedom.

A few words to those who fear the tendency of these exercises to instil a warlike and blood-thirsty spirit, and we will close. To them we say, we would emulate the ancients only so far as we can obtain from them some of their earlier and nobler traits of patriotism, courage, strength, endurance, and health. Let us picture what effect this training would have upon individual character.

Let us take the example of a young lad, entering the public school in the primary department, with perhaps a sickly, indolent disposition, and somewhat careless and slovenly in his appearance.

We know very well from the present system of studies, that his mind will be well cared for, and therefore pass to the effect of the physical training upon him.

The first lesson then is to stand in an erect and commanding attitude, with his chest well expanded, then his careless, slouching steps, with hanging head, are soon changed to the brisk, smart *walk* of a young gentleman. Calisthenics and exercises proportionate to his strength, and tending to develop his limbs very soon improve his health and impart a youthful vigor and energetic purpose to his motions, which are so much to be admired in young lads and give such rich promise of the future manhood. He soon learns exact and unhesitating obedience, and is taught by precept and example, that no small advantage in appearance is to be derived from a clean face and well brushed clothes. Is it to be denied that he thus learns habits of order, activity and cleanliness, which will be invaluable to him in after years?

But his greatest ambition, the goal of all his hopes,—the reward for which he studies diligently, is active and neat in his deportment, docile and obedient to his teachers,—is to be promoted to the grammar department or higher classes, where the boys have military exercises. He looks with longing eyes at their neat, orderly ranks, as they form for drill or parade; their brightly polished shoes, neatly brushed clothes and well kept arms. All this is something to look forward to, and when he has accomplished it, has he not to strive by activity to win his *grade* and by self-control and obedience prove himself deserving to command others? Manhood, when it arrives, finds him bright, active, self-reliant and ready to become a public spirited member of society.

Let the necessity of military exercises be placed before the boy in a patriotic light and it will induce him not only to take greater care in the execution, but likewise implant a still greater love of country from the very knowledge that some day he may be of use to her,—of use to her in the pulpit, in the legislative forum, in the busy pursuits of industry and the various walks of life. And if the necessity again calls for action, or if the present war is of long duration and tests the strength and perseverance of our national character, let us not shrink from the ordeal, but with a firm reliance upon an Almighty God and a righteous cause, let us go forth in this good fight, we of this generation and our children, and faithfully discharge the duties of Christian soldiers in defense of truth, justice, and our country.

U. S. MILITARY AND COMMERCIAL MARINE SCHOOLS.

NAVY AND NAVAL AFFAIRS.

By the Constitution of 1789, Congress is empowered "to regulate commerce, to provide and maintain a navy, and make rules for the government and regulation of the land and naval forces." The initiatory steps for establishing and regulating a navy were taken by the Continental Congress in November and December, 1775. The management of naval affairs was first assigned to a Marine Committee of Congress, appointed Dec. 11, 1775, which in 1779 (June 9), was converted into Commissioners, and before the close of that year, into a Board of Admiralty, which consisted of five members, two of whom were members of Congress, with a secretary, who was appointed by Congress. In 1781 (Feb. 7), a Secretary of Marine was created to execute all the duties and powers of the Board of Admiralty. In the condition of the public treasury, and "in the dilatory and parsimonious action of the several States in forwarding funds for the construction of ships, docks, and naval arsenals, and for the support of the naval service," Congress voted in August, 1783, "that it was not advisable to purchase ships for the present."

The necessities of a disordered commerce, and of a sufficient naval force to protect the navigation of the country, and repel the first approach of a hostile army from abroad, were among the motives for establishing a more efficient federal government. But until the danger of war with England became imminent, a large party in the country, in and out of Congress, opposed the necessary appropriations for putting the Navy of the United States on a respectable footing.

In constituting the executive departments of the national government under the Constitution, the administration of the navy and naval affairs were committed to the War Department, where it remained till 1798, when (April 30) an Act was passed "to establish an executive department to be denominated the Department of the Navy."

The Act of March 27, 1794, by which the construction and manning of four ships of 44 guns each, and two of 36 were ordered, was called for by the depredations on our commerce, and particularly in the Mediterranean Sea. In this Act the appointment of eight midshipmen, to rank with the warrant and petty officers, was authorized, and the Navy Register bears the names of only eight officers holding that rank prior to 1800. In 1801 the naval force of the United States consisted of 13 ships, viz.: 4 of 44 guns each (*United States*, *President*, *Constitution*, and *Philadelphia*); 4 of 36 guns each (*Chesapeake*, *Constellation*, *Congress*, and *New York*); 5 of 32 guns each (*Benton*, *Essex*, *Adams*, and *John Adams*); and by an Act of that year all others were ordered to be sold, and the completion of any more in the yards, was suspended. But the insults to our flag and destruction of our commerce by the Barbary powers, and the privateers of England and France, aroused such a feeling in the country that Congress ordered a squadron to be fitted out for the Mediterranean in 1803, which proved to be the school in which the seamanship of the Navy was trained, and the gallantry of its officers signally displayed. In the legislation of this period originated the "gun-boat" policy as an auxiliary means of harbor defense. In 1805 the first vessel of this class was added to the Mediterranean squadron, and in 1806 the President announced that 50 more could be relied on for the naval service. Gun-boats, properly constructed and armed, are now part of the system of harbor defense in all countries.

By an Act of Congress approved April 21, 1806, the whole number of able seamen, ordinary seamen and boys, for the United States Navy was not to exceed 925. March 3, 1807, the President was authorized to employ 500 additionals, increasing the authorized number to 1,425. January 31, 1809, the President was authorized to employ 3,600 able seamen, ordinary seamen and boys, in addition to the number of petty officers, seamen, etc., previously authorized, which increased the number of enlisted men allowed to 5,125.

In 1810 an appropriation was made to test the value of torpedo or submarine explosives, as engines of war, and in 1842 to test the submarine battery ignited by a submerged electric wire, devised by Samuel Colt. The introduction of these "engines of war" into the defense of Southern harbors, in 1861–65, demonstrated their efficiency and inaugurated a new system of not only harbor defense, but of attack.

March 30, 1812, the President was further authorized to increase the seamen, etc., and as far as necessary to equip the frigates *Chesapeake*, *Constellation*, and *Adams*, any law to the contrary notwithstanding. In this Act provision was made for the appointment of a schoolmaster to each ship having a complement of 12 midshipmen.

March 3, 1813, he was authorized to have built six sloops-of-war, and to have them manned and equipped, and to employ the number of seamen which were necessary for such vessels as were authorized by law to be put in commission.

In 1816, in the appropriation annually of $1,000,000 for eight years to the gradual increase of the Navy by nine 74 gun-ships, and twelve 44 gun-frigates, provision was made to procure the steam-engines and build and equip three steam-batteries for the defense of ports and harbors—the introduction of a new element into the naval service. In 1839 the Secretary was authorized to construct three steam-vessels of war, "according to the best advices that could be obtained."

In 1837, after strenuous efforts to enlist Congress in some systematic plan for supplying the navy with well instructed and thoroughly disciplined seamen, the Secretary was authorized to enlist under certain conditions, boys between the ages of 13 and 18, who should receive special opportunities for school and professional training.

In 1844, $100,000 was appropriated to build at Pittsburg an iron steamer (the *Alleghany*); and the appearance and exploits of the *Merrimac* and the *Monitor*, in the waters of the Chesapeake, in 1863, introduced a new system of naval construction and armament, not only into our navy, but in less than ten years revolutionized the ship-yards and ordnance foundries of the world.

By Act of March 3, 1845, it was provided "that the whole number of petty officers, seamen, ordinary seamen, landsmen and boys, in the naval service, shall not exceed 7,500 at any one time during the fiscal year," for which appropriation was then made.

By Act of March 3, 1857, the Secretary of the Navy was authorized to enlist 8,500 men for the Navy, instead of 7,500. During the late civil war the limitation of enlisted men was suspended; and in his annual report, December, 1862, the Secretary states the number of persons employed on board our naval vessels, including receiving ships and recruits, as about 28,000; and in his report of December, 1865, he says the number was increased to 51,500 at the close of the war, which in 1867 had been reduced to 11,900.

In 1864 the Secretary of the Navy revived the system of naval apprenticeship, which was inaugurated under the Act of March 2, 1837, but suspended because the favorable results anticipated from a fair trial were not realized at once, under various disadvantages of a new enterprise, and because Congress, in 1845, by limiting the whole number of persons employed in the naval service, compelled the Department to discharge boys instead of men.

By Act of June 17, 1868, the number of persons enlisted into the Navy, including apprentices and boys, was limited to 8,500—a limitation actually below the maximum which existed prior to the war, and compelled the department to reduce the number of naval apprentices, and finally to again abandon that system.

The number of line officers is now (1871) limited by law to one admiral, one vice-admiral, 10 rear admirals, 25 commodores, 50 captains, 90 commanders; total flag and commanding officers, 177. To these are added 80 lieutenant commanders, 280 lieutenants, 200 masters and ensigns—making the total line officers of all grades, excepting midshipmen (309 including those at Annapolis), 737.

The medical staff consists of 180, viz.: 15 medical directors (captains); 15 inspectors (commanders); 50 surgeons (lieut.-commanders), and 100 passed assistant and assistant surgeons.

The engineers' department (total 250) includes 10 chief engineers (captains); 15 *do.* (commanders); 45 *do.* (lieut.-commanders); 100 assistants (masters and ensigns). There are 126 paymasters, 13 ranking as captains; 13 as commanders; 50 as lieut.-commanders. The number of chaplains is limited to 24, and of professors to 12.

Although, strangely enough, not under the administration of the Navy Department, the inauguration of the Coast Survey in 1807, and its thorough prosecution since 1844, when the employment of officers of the army and navy in the work was authorized; the recognition of the Naval Observatory at Washington city, and authorizing the making astronomical and meteorological observations, in the Act of August 3, 1848; the assignment of a competent officer of the navy to the preparation of the Nautical Almanac; the institution of the bureau of Hydrography and Ordnance, in 1842; the employment of three suitable vessels of the navy to test and perfect the plans of Lieutenant Maury in his investigations of the winds and the currents of the ocean, by Act of March 3, 1849; the concentration of the teaching staff of the corps of midshipmen preparatory for their examination at the Naval Asylum at Philadelphia, and their removal to separate accommodations at the old military station of Fort Severn, in Annapolis, by order of Secretary Bancroft in 1845, and the formal recognition of the institution as the Naval School, in the appropriations for the navy in 1847—these and other acts of Congress, and the action of the Department under them, are important data in the history of the Navy and Naval Education—especially of their scientific character.

GROWTH IN SHIPS, OFFICERS AND MEN.

The following Tables, prepared by Capt. George H. Preble, U. S. N., which are copied from the Army and Navy Journal for Nov. and Dec., 1871, exhibit in a condensed view the expansion of the military and merchant marine of the United States, from 1816 to 1871 inclusive, as well as its condition in each year from 1816.

TABLE I.—*Naval Vessels, Tonnage, Officers, Seamen, and Cost. Tonnage.*

Year.	Number of Vessels United States Navy.	Number of Guns.	Tonnage of Vessels belonging to the United States Navy.	Total number of Navy Officers, including Midshipmen and Mates.	Total number of Petty Officers, Seamen etc.	Total Expenditures for the Navy and Marine Corps.	Total Tonnage of U. S. Enrolled, Licensed and Registered.
1816....	...	....	40,032	848	unknown.	$3,908,278	1,372,219
1817....	111	1,267	39,642	954	.....	3,314,598	1,399,911
1818....	115	1,383	39,682	948	.....	2,953,695	1,225,184
1819....	90	1,243	36,512	926	.....	3,847,640	1,260,753
1820....	88	1,384	38,057	895	.....	4,387,990	1,280,166
1821....	36	1,017	33,851	876	.....	3,319,243	1,290,959
1822....	38	1,047	34,413	848	.....	2,224,450	1,324,670
1823....	45	1,085	36,039	812	.....	2,503,766	1,336,566
1824....	49	1,122	36,338	843	.....	2,904,581	1,389,163
1825....	44	1,107	36,174	856	.....	3,049,087	1,423,111
1826....	46	1,104	39,577	859	.....	4,218,902	1,534,190
1827....	49	1,163	42,708	877	.....	4,263,878	1,620,608
1828....	53	1,243	44,149	898	.....	3,918,786	1,741,392
1829....	52	1,315	40,865	996	.....	3,988,643	1,260,798
1830....	51	1,287	40,865	1,051	.....	3,239,429	1,191,776
1831....	50	1,269	41,953	990	.....	3,856,183	1,276,846
1832....	52	1,202	42,147	987	.....	4,947,718	1,439,450
1833...	53	1,872	60,002	1,022	.....	4,274,184	1,606,149
1834....	53	1,872	67,804	1,012	.....	4,613,657	1,758,907
1835....	53	1,872	66,479	1,035	3,627	4,209,836	1,824,940
1836....	51	1,969	66,281	1,044	3,804	6,252,145	1,882,685
1837....	55	1,982	69,043	1,048	5,201	6,646,915	1,886,684
1838....	55	1,982	69,233	1,104	5,650	6,131,581	1,985,649
1839....	55	2,022	71,396	1,157	6,932	6,182,294	2,096,479
1840....	62	2,106	74,776	1,171	7,072	6,113,896	2,180,764
1841....	67	2,106	72,418	1,222	7,419	6,001,077	2,130,744
1842....	69	2,044	73,835	1,482	9,784	8,397,243	2,092,391
1843....	71	2,022	77,031	1,493	10,321	3,727,712*	2,158,603
1844....	74	2,464	78,221	1,448	10,000	6,498,199	2,280,095
1845....	76	2,400	79,592	1,434	7,500	6,297,178	2,417,002
1846....	76	2,345	80,992	1,398	7,500	6,455,014	2,562,084
1847....	81	2,398	86,456	1,391	7,500	7,900,636	2,839,046
1848....	92	2,401	95,755	1,425	7,500	9,408,477	3,154,042
1849....	78	2,380	92,391	1,465	7,500	9,786,706	3,334,016
1850....	77	2,370	91,591	1,423	7,500	7,904,725	3,535,454
1851....	74	2,336	90,786	1,416	7,500	8,880,582	3,772,439
1852....	75	2,346	90,992	1,432	7,500	8,918,842	4,138,440
1853....	75	2,320	91,814	1,417	7,500	11,067,790	4,407,010
1854....	73	2,115	91,787	1,423	7,500	10,790,096	4,802,902
1855....	78	2,355	112,715	1,433	7,500	13,327,095	5,212,001
1856....	76	2,359	111,803	1,196	7,500	14,074,835	4,872,652
1857....	73	2,332	109,224	1,206	8,500	12,651,695	4,940,842
1858....	78	2,231	113,765	1,287	8,500	14,053,265	5,049,808
1859....	86	2,273	132,489	1,351	8,500	14,690,927	5,145,038
1860....	91	2,329	133,832	1,436	8,500	11,514,650	5,353,868
1861....	90	2,309	133,842	1,497	10,000	12,387,157	5,539,813
1862....	383	2,876	284,377	3,493	28,000	42,674,569	5,112,165
1863....	449	2,926	333,841	4,613	.....	63,211,105	5,155,055
1864....	617	4,088	463,107	6,170	51,500	85,733,293	4,986,401
1865....	681	4,662	470,362	7,296	.....	116,781,676	5,096,783
1866....	320	2,688	336,874	2,847	13,600	43,324,526	4,310,778
1867....	273	2,235	313,056	2,770	11,900	31,034,011	4,304,486
1868....	229	1,704	281,629	2,420	8,500	20,120,395	4,351,758
1869....	203	1,701	255,217	1,921	8,500	18,985,165	4,144,639
1870....	186	1,443	183,217	1,853	8,500	15,870,531	4,246,507
1871....	177	1,446	181,738	2,020†	8,500	19,431,027	4,111,412

* Change of the fiscal year.

† From this number should be deducted 130 mates not permanent officers of the Navy.

TABLE II. *Line Officers*—1816 *to* 1871.

Year.	Admirals.	Vice-Admirals.	Rear Admirals.	Commodores.	Captains.	Master Command'ts or Commanders.	Lieut. Command'rs.	Lieutenants.	Masters.	Passed Midshipmen or Ensigns.	Midshipmen.	Cadet Midshipmen.	Mates.	Total Line Officers.
1815....	....	....	....	....	....	......	.....	......	..	..	...	..	..	...
1816....	....	....	....	....	32	18	.....	150	..	..	495	..	..	695
1817....	....	....	....	....	31	22	.....	157	87	..	415	..	4	716
1818....	....	....	....	....	34	26	.....	182	83	..	404	..	7	736
1819....	....	....	....	....	35	23	.....	213	76	..	362	..	7	716
1820....	....	....	....	....	34	22	.....	202	76	..	350	..	4	688
1821....	....	....	....	....	32	21	.....	193	62	..	364	..	2	674
1822....	....	....	....	....	31	31	.....	196	58	..	336	..	1	653
1823....	....	....	....	....	30	30	.....	183	53	75	249	..	1	621
1824....	....	....	....	....	28	30	.....	172	51	71	312	..	..	664
1825....	....	....	....	....	24	30	.....	228	48	..	356	..	..	680
1826....	....	....	....	....	32	29	.....	209	43	15	361	..	..	689
1827....	....	....	....	....	31	27	.....	228	36	..	374	..	..	696
1828....	....	....	....	....	33	29	.....	229	33	..	392	..	..	716
1829....	....	....	....	....	35	33	.....	263	30	10	435	..	..	806
1830....	....	....	....	....	37	39	.....	258	32	41	425	..	..	842
1831....	....	....	....	....	37	34	.....	255	31	54	377	..	..	788
1832....	....	....	....	....	40	37	.....	259	32	74	345	..	..	787
1833....	....	....	....	....	37	41	.....	259	31	94	356	..	..	818
1834....	....	....	....	....	37	41	.....	259	29	133	317	..	..	807
1835....	....	....	....	....	37	41	.....	257	27	178	272	..	..	812
1836....	....	....	....	....	38	40	.....	257	27	199	251	..	..	812
1837....	....	....	....	....	40	41	.....	258	27	200	241	..	..	807
1838....	....	....	....	....	50	49	.....	276	27	181	247	..	..	830
1839....	....	....	....	....	52	55	.....	285	27	196	249	..	..	844
1840....	....	....	....	....	55	55	.....	290	29	191	231	..	..	851
1841....	....	....	....	....	55	55	.....	298	28	195	252	..	..	883
1842....	....	....	....	....	68	96	.....	328	30	103	460	..	4	1089
1843....	....	....	....	....	67	94	.....	324	31	133	410	..	7	1066
1844....	....	....	....	....	67	96	.....	324	30	147	356	..	12	1032
1845....	....	....	....	....	68	96	.....	327	31	159	314	..	11	1006
1846....	....	....	....	....	67	97	.....	326	28	181	264	..	11	974
1847....	....	....	....	....	64	97	.....	324	31	206	240	..	9	970
1848....	....	....	....	....	67	97	.....	327	31	218	228	..	8	966
1849....	....	....	....	....	68	97	.....	327	31	270	181	..	8	982
1850....	....	....	....	....	68	97	.....	327	32	218	152	..	5	940
1851....	....	....	....	....	68	97	.....	327	33	233	171	..	3	932
1852....	....	....	....	....	68	97	.....	325	32	205	144	55	3	929
1853....	....	....	....	....	68	97	.....	327	32	197	122	76	3	922
1854....	....	....	....	....	68	97	.....	326	18	198	89	94	2	892
1855....	....	....	....	....	68	97	.....	326	32	190	66	128	2	912
1856....	....	....	....	....	68	97	.....	326	19	..	46	124	1	681
1857....	...	....	....	....	64	96	.....	311	24	24	30	145	1	696
1858....	....	....	....	....	76	106	.....	319	1	23	45	174	1	745
1859....	....	....	....	....	81	116	.....	338	20	..	47	187	..	789
1860....		....	....	....	80*	114	.....	325	34	..	49	238	..	840
1861....		....	....	....	79*	114	.....	321	36	..	55	267	..	872
1862....		...	4	18	40	91	144	90	..	..	67	220	..	664
1863....		...	4	14	37	72	144	96	..	30	9	382	..	788
1864....		...	6	18	36	72	144	96	..	88	2	457	..	913
1865....		1	5	19	35	67	139	113	..	53	31	458	..	931
1866....		1	4	19	35	71	142	90	11	39	84	450	..	946
1867....		1	10	24	46	90	165	22	53	54	72	421	..	959
1868....		1	9	24	49	90	136	45	29	52	157	344	..	937
1869....		1	10	25	50	89	171	46	80	154	77	286	..	990
1870....		1	10	25	50	90	180	64	99	160	74	251	..	1103†
1871....		1	12	25	50	89	178	141	151	69	69	240	..	1256‡

* One senior flag officer.

† Including 98 mates, temporary officers not eligible for promotion and not properly belonging to the Regular Navy, and should be classed as Volunteers.

‡ Including 130 mates, temporary officers not eligible for promotion and not properly belonging to the Regular Navy, and should be classed as Volunteers.

TABLE III. *Warrant or Forward Officers, and Marine Corps,* 1816 *to* 1871.

	Warranted or Forward Officers, 1815 to 1871 inclusive.					Officers of the United States Marine Corps, 1815 to 1871 inclusive.						
Year.	Boatswains.	Gunners.	Carpenters.	Sailmakers.	Total.	Colonels.	Lieut-Colonels.	Majors.	Captains.	Lieutenants.	Second Lieutenan'ts.	Total.
1815	28	24	18	12	82	1	.	2	20	21	18	62
1816	28	24	6	2	60	1	.	1	20	21	18	61
1817	28	22	6	2	58	1	.	1	16	19	13	50
1818	22	22	17	11	72	1	.	.	9	23	16	49
1819	22	22	16	11	71	.	.	.	9	23	16	48
1820	19	22	17	12	70	.	1	.	9	24	9	43
1821	14	18	12	8	52	.	1	.	8	24	16	49
1822	16	17	13	10	56	.	1	.	8	21	15	45
1823	16	18	13	11	58	.	1	.	9	24	16	50
1824	15	18	14	12	59	.	1	.	9	24	15	49
1825	16	16	10	10	52	.	1	.	9	24	14	48
1826	13	12	10	9	44	.	1	.	9	23	17	50
1827	15	14	11	9	49	.	1	.	9	24	16	50
1828	14	18	14	11	57	.	1	.	9	24	16	50
1829	17	19	13	14	63	.	1	.	9	24	16	50
1830	18	20	16	16	70	.	1	.	9	24	16	50
1831	18	19	13	17	67	.	1	.	9	24	16	50
1832	21	16	12	18	67	.	1	.	9	24	16	50
1833	16	19	15	13	63	.	1	.	10	24	16	50
1834	18	17	16	14	65	.	1	.	10	24	16	50
1835	18	20	20	19	77	1	1	4	13	20	19	58
1836	21	20	20	19	80	1	1	4	13	20	19	58
1837	22	23	20	19	84	1	1	4	13	20	20	59
1838	25	29	23	24	101	1	1	4	13	19	20	58
1839	32	35	27	26	120	1	1	4	13	20	19	58
1840	32	37	24	25	118	1	1	4	13	20	20	59
1841	29	36	28	27	120	1	1	4	13	20	20	59
1842	32	41	36	33	142	1	1	4	13	20	19	58
1843	37	40	38	35	150	1	1	4	13	20	20	59
1844	32	39	35	33	139	1	1	4	13	20	20	59
1845	30	42	36	34	142	1	1	4	13	20	20	59
1846	31	42	36	34	143	1	1	4	13	20	20	59
1847	32	42	36	31	141	1	1	4	13	20	20	59
1848	38	44	40	29	151	1	1	7	14	23	24	70
1849	39	44	42	33	158	1	1	7	18	24	24	75
1850	39	43	42	34	158	1	1	7	18	23	23	73
1851	43	46	45	37	171	1	1	7	17	23	21	70
1852	41	45	45	38	169	1	1	7	16	21	21	67
1853	44	46	49	41	180	1	1	7	16	20	20	65
1854	38	48	51	41	178	1	1	7	14	20	20	63
1855	37	45	32	40	174	1	1	7	14	19	20	62
1856	39	40	48	39	166	1	1	7	14	20	20	63
1857	38	40	48	39	165	1	1	7	13	19	20	61
1858	38	44	47	42	171	1	1	7	14	19	20	62
1859	40	44	48	41	173	1	1	7	15	20	19	63
1860	41	46	46	42	175	1	1	7	14	20	20	63
1861	43	47	45	40	175	1	1	7	14	20	20	63
1862	54	93	60	46	253	2	2	7	24	30	30	95
1863	53	84	56	45	238	2	2	7	20	28	29	88
1864	49	71	53	40	213	2	2	7	21	30	22	84
1865	46	65	47	36	194	2	2	7	22	30	24	87
1866	39	63	43	32	177	2	2	7	22	30	24	87
1867	52	59	40	30	181	2	2	7	22	30	30	93
1868	52	55	36	31	174	.	2	7	21	30	27	88*
1869	51	50	32	30	163	1	2	7	22	30	23	86*
1870	46	52	38	31	167	1	2	7	23	30	26	90*
1871	46	57	39	34	176	1	2	7	22	30	30	93*

* One brigadier-general since 1868. The senior officer has always been styled the lieutenant-colonel-commandant, colonel-commandant, or brigadier-general commandant. Since 1868, in the number of majors and captains is included those of the staff ranking with the line. At present there are three staff officers holding the rank of major, and two that of captain.

STAFF OFFICERS, 1815 TO 1842 INCLUSIVE.

Year.	Medical Dep't.				Pursers or Paymas'rs.	Chaplains, Professors of Mathematics, and Teachers.	Total Staff Officers.
	Surgeons.	Passed Ass't Surg'ns.	Assistant Surgeons.	Surgeons's Mates.			
1815..	43	..	..	44	39	4	130
1816..	45	..	..	44	40	4	133
1817..	48	..	..	72	53	7	180
1818..	44	..	..	44	45	7	140
1819..	52	.	..	33	45	9	139
1820..	47	..	..	34	44	12	137
1821..	47	..	..	46	44	13	150
1822..	46	..	..	41	42	10	139
1823..	42	..	..	32	40	9	123
1824..	35	..	..	38	39	8	120
1825..	34	..	..	40	40	10	124
1826..	39	..	..	35	42	10	126
1827..	40	..	..	40	43	9	132
1828..	37	..	..	37	42	9	125
1829..	43	..	34	..	41	9	127
1830..	39	..	58*	..	43	9	149
1831..	37	..	46	..	43	9	135
1832..	44	..	38	..	42	9	133
1833..	44	..	45	..	43	9	141
1834..	43	..	46	..	43	8	140
1835..	44	15	31	..	43	13	146
1836..	43	15	35	..	42	17	152
1837..	44	26	23	..	44	20	157
1838..	49	20	37	..	45	22	173
1839..	60	16	51	..	49	27	193
1840..	61	17	53	..	51	30	202
1841..	59	17	57	..	53	33	219
1842..	69	11	55	..	64	52	251
......	..	..	..	..	..	..	...

STAFF OFFICERS, 1842 TO 1871 INCLUSIVE.

Year.	Medical Dep't.			Pay Department.			Engineer Dep't.				Chaplains.	Professors and Teachers of Language.	Total of Staff Officers.
	Surgeons.	Passed Ass't Surg'ns.	Assistant Surgeons.	Paymasters.	Pass'd As't Paym'er.	Ass't Paymasters.	Chief Engineers.	1st Asst. Engineers.	2d Asst. Engineers.	3d Asst. Engineers.			
1843	69	9	60	64	..	..	5†	8	5	5	22	29	277
1844	69	26	39	64	..	..	5†	9	5	10	22	26	277
1845	69	26	41	64	..	..	5†	11	9	11	23	25	286
1846	69	29	36	64	..	..	5	5	13	13	23	24	281
1847	69	33	34	62	..	..	4‡	5	13	13	22	24	280
1848	68	41	37	63	..	..	6‡	9	18	24	24	23	308
1849	69	39	41	64	..	..	6‡	12	17	38	24	14	325
1850	68	37	43	64	..	..	8‡	8	18	33	24	12	316
1851	68	34	44	63	..	..	9‡	7	17	35	23	12	313
1852	69	34	45	64	..	..	10‡	19	29	28	24	12	334
1853	69	40	37	63	..	..	13‡	18	34	34	24	12	345
1854	69	37	42	64	..	..	11‡	24	25	44	24	12	353
1855	69	35	44	64	..	..	12‡	22	23	41	24	12	347
1856	69	36	43	64	..	..	13	21	28	39	24	12	349
1857	69	43	37	64	..	..	17	24	20	35	24	12	345
1858	69	41	39	62	..	..	18	31	21	54	24	12	371
1859	69	41	39	64	..	..	21	33	23	63	24	12	389
1860	69	37	42	64	..	..	24	36	23	92	23	11	421
1861	69	43	36	64	..	..	28	43	29	92	24	12	450
1862	80	2	118	62	..	31	48	32	78	246	16	12	724
1863	80	1	117	63	..	31	49	32	92	264	18	12	759
1864	80	7	108	64	..	23	52	48	149	252	20	12	815
1865	78	22	108	63	..	33	59	65	235	115	21	12	811
1866	79	44	33	62	..	30	54	65	175	64	19	12	637
1867	79	38	37	80	39	11	54	86	146	37	19	11	637
1868	80	42	28	80	39	26	50	88	131	24	18	11	617
1869	80	35	33	79	38	18	49	91	112	35	16	11	597
1870	80	33	35	80	40	20	48	81	122	1	21	10	571
1871	80	32	38	80	39	29	56	98	93	...	23	9	575

VOL. OFFICERS, 1862 TO 1871 INCLUSIVE.

LINE.

Year.	Acting Lieutenants and Lieut.-Commanders.	Acting Vol. Lieutena'ts.	Acting Masters.	Acting Ensigns.	Acting Master's Mates and Mates.	Acting Boatswains and Gunners.	Total.
1862..	14	28	581	60	572	..	1255
1863..	15	50	581	336	754	31	1767
1864..	4	81	516	896	901	47	2445
1865..	14	112	583	1280	843	75	2907
1866..	8	39	133	258	192	9	619
1867..	4	36	140	251	201	2	634
1868..	4	26	114	163	142	2	451
1869..	..	..	12	9	76	..	97
1870..	..	1	1	1	..	..	3
1871..	..	1	1	2	..	..	4

STAFF.

Year.	Act. Passed Assistant Surgeons.	Act. Asst. Surgeons.	Act. Asst. Paymasters.	Act. Chief Engineers.	Act. Asst. Engineers, 1st,2d,&3d.	Act. Carp'rs.	Total.
1862	..	93	140	..	364	..	597
1863	..	142	217	21	665	16	1061
1864	..	197	330	44	1185	23	1784
1865	..	246	372	55	1751	28	2453
1866	12	60	80	14	301	1	468
1867	20	18	18	7	296	1	360
1868	19	16	2	2	205	..	242
1869	7	5	1	..	61	..	74
1870	2	2	..	..	5	..	9
1871	2	7	..	..	..	..	9

* Sixteen acting assistants.

† Also one engineer-in-chief and one principal engineer in 1843, '44, and '45.

‡ Also one engineer-in-chief, 1847 to 1855 inclusive.

TABLE V. *Sailing Vessels of United States Navy*—1817 *to* 1839.

Year.	Ships of the Line.	Razees.	Frigates.	Corvettes.	Sloops-of-War.	Brigs-of-War.	Schooners.	Gunboats.	Galleys.	Barges.	Store Vessels.	Block Ships.	Unarmed Vessels.	Bomb Vessels.	Steam Frigates.	Steam Galliops.	Exploring Vessels.	Total No. of Vessels.
1817	5	....	9	2	13	12	11	11	8	24	....	1	9	5	1	....	....	111
1818	5	....	10	3	11	13	10	9	8	34	....	1	7	3	1	....	....	115
1819	5	....	9	3	5	13	13	7	8	21	....	1	3	1	1	....	....	90
1820	5	....	9	3	5	13	13	5	8	21	....	1	3	1	1	....	....	88
1821	7	....	7	2	4	2	6	6	....	....	1	....	....	....	1	....	....	36
1822	7	....	7	2	4	2	8	6	....	....	1	....	....	....	1	....	....	38
1823	7	....	8	2	4	2	15	5	....	....	1	....	....	....	1	....	....	45
1824	7	....	8	2	4	1	13	5	5	....	2	....	....	....	1	1	....	49
1825	7	....	8	2	5	1	8	5	5	....	1	....	....	....	1	1	....	44
1826	12	....	14	2	8	1	5	....	....	....	2	....	....	....	1	1	....	46
1827	12	....	14	2	13	....	5	....	....	....	1	....	....	....	1	1	....	49
1828	12	....	16	....	17	....	5	....	....	....	1	....	....	....	1	1	....	53
1829	12	....	16	....	16	....	5	....	....	....	1	....	....	....	1	1	....	52
1830	12	....	16	....	16	....	5	....	....	....	1	....	....	....	....	1	....	51
1831	12	....	16	....	15	....	5	....	....	....	1	....	....	....	....	1	....	50
1832	12	....	17	....	15	....	7	....	....	....	....	....	....	....	....	1	....	52
1833	12	....	17	....	15	....	8	....	....	....	....	....	....	....	....	1	....	53
1834	12	....	17	....	15	....	8	....	....	....	....	....	....	....	....	1	....	53
1835	12	....	17	....	15	....	8	....	....	....	....	....	....	....	....	1	....	53
1836	11	1	16	....	15	....	7	....	....	....	....	....	....	....	....	1	....	51
1837	11	1	16	....	14	2	6	....	....	....	....	....	....	....	....	1	4	55
1838	11	1	16	....	14	4	7	....	....	....	1	....	....	....	....	1	....	55
1839	11	1	16	....	16	4	7	....	....	....	1	....	....	....	1	1	....	56

TABLE VI. *Sailing and Steam Vessels*—1840 *to* 1861.

Year.	SAILING VESSELS.										STEAM VESSELS.									Total Number of Vessels.
	Ships of the Line.	Razees.	Frigates.	Sloops-of-War.	Brigs-of-War.	Schooners.	Store Vessels.	Bomb Vessels.	Perman't Rec'g Vessels.	Total Sailing Vessels.	Screw Steam's, 1st Cl's.	Screw Steam's, 2d Cl's.	Screw Steam's, 3d Cl's.	Screw Steamers.	Side Wheeled, 1st Class.	Side Wheeled, 2d Class.	Side Wheeled, 3d Class.	Steam Tenders.	Total Steam Vessels.	
1840..	11	1	16	21	4	8	1	..	..	62	..	..	..	..	2	1	1	..	4	66
1841..	11	1	16	21	4	9	1	..	..	63	..	..	..	..	2	1	1	..	4	67
1842..	11	1	16	21	4	9	3	..	..	65	..	..	..	..	2	1	1	..	4	69
1843..	11	1	15	18	8	9	3	..	..	65	..	1	..	..	2	1	2	..	6	71
1844..	10	1	15	22	7	9	5	..	..	69	..	1	..	..	1	1	2	..	5	74
1845..	10	1	14	23	8	8	4	..	..	68	..	1	..	..	1	1	5	..	8	76
1846..	11	1	14	23	8	6	4	..	..	67	..	1	..	..	1	1	6	..	9	76
1847..	11	1	14	22	5	9	6	..	..	68	..	1	..	..	1	1	10	..	13	81
1848..	11	1	14	22	6	12	7	4	..	77	..	1	..	..	1	1	12	..	15	92
1849..	11	1	14	22	5	5	6	..	..	64	..	2	..	..	4	1	7	..	14	78
1850..	11	1	14	22	4	5	6	..	..	63	..	2	..	..	4	1	7	..	14	77
1851..	11	1	14	21	4	3	5	..	..	59	..	1	..	2	4	3	5	..	15	74
1852..	11	1	14	21	4	3	5	..	..	59	1	2	..	..	4	3	6	..	16	75
1853..	11	1	13	21	4	4	5	..	..	59	1	1	2	..	4	3	5	..	16	75
1854..	10	1	13	20	4	1	7	..	2	58	1	2	2	..	4	3	3	..	15	73
1855..	10	1	13	20	4	1	7	..	2	58	7	1	1	..	3	1	7	..	20	78
1856..	10	1	12	19	3	1	6	..	2	54	7	1	2	..	3	1	5	3	22	76
1857..	10	1	12	19	3	1	5	..	..	51	7	1	2	..	3	1	5	3	22	73
1858..	10	..	10	21	3	1	3	..	5	53	8	6	2	2	3	1	2	1	25	78
1859..	10	..	10	21	3	1	3	..	5	53	8	6	9	2	3	1	3	1	33	86
1860..	10	..	10	21	3	..	3	..	5	52	8	6	8	5	3	1	5	3	39	91
1861..	10	..	10	20	3	..	3	..	6	52	8	6	8	7	4	1	4	..	38	90

TABLE VII. *Sailing and Steam Vessels*—1862 *to* 1871.

Year.	SAILING VESSELS.					STEAM VESSELS.															Total No. of Vessels in the U. S. Navy.
						Screws.					Iron-Clads.					Side Wheel.					
	First Rates.	Second Rates.	Third Rates.	Fourth Rates.	Total Sailing.	First Rates.	Second Rates.	Third Rates.	Fourth Rates.	Total Screws.	First Rates.	Second Rates.	Third Rates.	Fourth Rates.	Total.	First Rate.	Second Rate.	Third Rate.	Fourth Rate.	Total.	
1862..	7	10	19	65	101	5	16	29	69	119	5	5	37	6	53	2	19	40	51	112	383
1863..	4	7	12	83	106	6	15	24	96	141	4	6	37	6	53	2	10	52	85	149	449
1864..	3	5	16	84	108	12	35	37	129	213	9	5	56	4	74	2	16	52	152	222	617
1865..	3	6	16	84	109	23	32	42	168	265	3	6	6	56	71	3	8	56	169	236	681
1866..	1	6	16	19	42	23	31	17	64	135	3	7	6	53	69	3	4	47	20	74	320
1867..	2	6	15	15	38	20	18	15	53	106	3	6	6	47	62	3	4	43	17	67	273
1868..	6	9	12	5	32	19	21	17	43	100	7	4	41	3	55	3	4	23	12	42	229
1869..	6	9	11	5	31	19	21	16	40	96	7	4	38	3	52	3	1	11	9	24	203
1870..	..	2	17	11	30	5	24	19	40	88	..	6	5	40	51	..	4	1	12	17	186
1871..	..	2	17	10	29	3	24	18	42	87	..	4	6	40	50	..	4	..	7	11	177

The following Table, prepared from the official Navy Register for January of each year, by Capt. G. H. Preble, U. S. Navy, exhibits the number of midshipmen graduates, and midshipmen attached to the Naval Academy, with their classification and the number of resignations, deaths, and dismissals, from 1851 to 1871, inclusive.

TABLE VIII. *Midshipmen in Naval Academy.*

Year.	Midshipmen.	First Class.	Second Class.	Third Class.	Fourth Class.	Total.	Resignations.	Deaths.	Dismissals.
1851...	171	..	..	..	..	171	14	5	13
1852...	144	..	..	..	28	172	7	.	16
1853...	122	..	..	28	48	198	17	1	13
1854...	89	6	16	30	42	183	9	3	17
1855...	66	12	26	16	74	194	23	1	15
1856...	47	20	17	38	49	171	31	4	2
1857...	30	15	24	28	78	175	34	1	2
1858...	45	15	24	35	100	219	38	.	7
1859...	47	20	28	56	83	234	30	.	1
1860...	49	25	39	57	117	287	22	.	3
1861...	55	35	38	70	124	324	33	3	4
1862...	67	21	31	120	79	318	112	1	14
1863...	9	21	31	118	212	391	45	2	14
1864...	2	39	63	137	218	489	20	4	53
1865...	31	60	99	133	163	486	74	.	53
1866...	84	78	110	115	147	534	70	2	12
1867...	72	89	87	98	147	493	68	2	7
1868...	157	81	82	88	93	501	57	2	3
1869...	77	80	77	76	53	363	25	1	5
1870...	74	68	54	37	92	325	45	1	4
1871...	69	51	33	48	108	309	42	1	3

U. S. NAVAL ACADEMY AT ANNAPOLIS.

I. HISTORICAL NOTICE.

The history of the United States Naval Academy, as an institution, opens October, 1845, but its germ and growth in suggestions, for the practical instruction of midshipmen, dates back to the beginning of the century. A school of the Navy constituted one of the departments, or group of schools, in the plan of a Military Academy drawn up by Alexander Hamilton, as Inspector General of the Army, and submitted to Congress, January, 1800, in the Report of the Secretary of War (James McHenry), whose department was at that time charged with the management of naval affairs.

In 1808, General Williams, in a report on the enlargement of the Military Academy at West Point, of which he was Superintendent, recommended "that nautical astronomy, geography, and navigation should be taught by the professor of mathematics," and that the plan of the institution should "take in the minor offices of the navy; but also any youths from any of the States who might wish for such an education, whether designated for the army or navy, or neither, and to let these be assessed to the value of their education." This plan was doubtless suggested by the Polytechnic School of France, and if adopted at the time, would have not only have given to the army and navy a much broader and firmer basis of scientific attainments, but would have hastened the construction of roads, bridges, canals, and railroads, and the development of the mineral and other industrial resources of the country, by turning out every year a number of young men, qualified in scientific culture, to enter on the duties of civil, mining and mechanical engineers, and become superintendents of manufacturing and other corporate enterprises. In the absence of any special school of preparation for such civil services, officers of the army were induced to resign their commissions to superintend the construction of canals and railroads under state and corporate auspices.

In the measures which grew out of the war of 1812, was the act of January, 1813, "to increase the Navy of the United States," in which authority was given to the Secretary of the Department to employ a schoolmaster for each vessel to which 12 midshipmen were assigned. By these, so far as appears in any published document, was given the first formal employment of this class of officers.

In 1814 the Secretary (William Jones) suggested "the establishment of a Naval Academy with suitable professors, for the instruction of the officers of the Navy in those branches of Mathematics and experimental philosophy, and in the service and practice of gunnery, theory of naval architecture, and art of mechanical drawing, which are necessary to the accomplishment of the naval officer." This suggestion was renewed by his successor, Smith Thompson, of New York, and a distinct proposition to locate it on Governor's Island, in the harbor of New York, by Secretary S. L. Southard, in 1824. In a special communication to the Senate in 1825, he says:

> The younger officers enter at so early an age, that they can not be accomplished, or even moderately accurate scholars. They are constantly employed on ship-board, or in our navy-yards, where much achievement in learning can not be expected. And yet the American naval officer is, in fact, the representative of his country in every port to which he goes, and by him is that country in greater or less degree estimated. "The science and information requisite for a navy officer," he repeats in his Report for 1827, "is in no respect inferior to that required by the army officers and engineers, and the interest as well as the honor of the country are not less concerned in the correct performance of their duties."

President Adams (J. Q.) in his Annual Message, Dec. 5, 1825, remarks that "the want of a Naval School of instruction corresponding with the Military Academy at West Point, for the promotion of scientific and accomplished officers, is felt with daily increasing aggravation." In his message, Dec. 4, 1827, he returns to the subject "as still soliciting the sanction of the legislature," adding—

> Practical seamanship, and the art of navigation, may be acquired upon the cruises of the squadrons, which, from time to time, are dispatched to distant seas; but a competent knowledge, even of the art of ship-building, the higher mathematics and astronomy; the literature which can place our officers on a level of polished education with the officers of other maritime nations; the knowledge of the laws, municipal and national, which in their intercourse with foreign states and their governments, are continually called into operation; and above all, that acquaintance with the principles of honor and justice, with the higher obligations of morals, and of general laws, human and divine, which constitute the great distinction between the warrior patriot and the licensed robber and pirate; these can be systematically taught and eminently acquired only in a permanent school, stationed upon the shore, and provided with the teachers, the instruments, and the books, adapted to the communication of these principles to the youthful and inquiring mind.

In 1841, Secretary Upshur renewed the recommendation of his predecessors, and a bill to establish a naval school at or near Fortress Monroe, passed the Senate, but was not acted upon in the House.

The nucleus of a school was formed when the midshipmen were first ordered to the Naval Asylums at Philadelphia and other places, to prepare for their examination, and several of the professors of Mathematics repaired there to give instruction.

In 1845 the Secretary of the Navy (George Bancroft), inaugurated and completed in four months an arrangement by which a Naval School, with its corps of professors, was instituted in a suitable location, without any special appropriation, and with only the existing authority of acts of Congress. The original plan is best set forth in Mr. Bancroft's letter to Commodore Franklin Buchanan, whom he appointed superintendent of the institution.

NAVY DEPARTMENT, August 7th, 1845.

SIR:

The Secretary of War, with the assent of the President, is prepared to transfer Fort Severn to the Navy Department, for the purpose of establishing there a school for midshipmen.

In carrying this design into effect, it is my desire to avoid all unnecessary expense—to create no places of easy service—no commands that are not strictly necessary—to incur no charge that may demand new annual appropriations; but, by a more wise application of moneys already appropriated, and officers already authorized, to provide for the better education of the young officers of the navy. It is my design not to create new officers, but, by economy of administration, to give vigor of action to those which at present are available; not to invoke new legislation, but to execute more effectually existing laws. Placed by their profession in connection with the world, visiting in their career of service every climate and every leading people, the officers of the American navy, if they gain but opportunity for scientific instruction, may make themselves as distinguished for culture as they have been for gallant conduct.

To this end it is proposed to collect the midshipmen who from time to time are on shore, and give them occupation during their stay on land in the study of mathematics, nautical astronomy, theory of morals, international law, gunnery, use of steam, the Spanish and the French languages, and other branches essential, in the present day, to the accomplishment of a naval officer.

The effect of such an employment of the midshipmen, can not but be favorable to them and to the service. At present they are left, when waiting orders on shore, masters of their own motions, without steady occupation, young, and exulting in the relief from the restraint of discipline on shipboard.

In collecting them at Annapolis for purposes of instruction, you will begin with the principle that a warrant in the navy, far from being an excuse for licentious freedom, is to be held a pledge for subordination, industry and regularity,—for sobriety, and assiduous attention to duty. Far from consenting that the tone of the discipline and morality, should be less than at the universities or colleges of our country, the President expects such supervision and management as shall make of them an exemplary body, of which the country may be proud.

To this end you have all the powers for discipline conferred by the laws of the United States, and the certainty that the department will recommend no one for promotion, who is proved unworthy of it from idleness or ill-conduct or continuing ignorance, and who can not bear the test of a rigid examination.

For the purpose of instruction, the department can select from among twenty-two professors and three teachers of languages. This force, which is now almost wasted by the manner in which it is applied, may be concentrated in such a manner as to produce the most satisfactory results. Besides, the list of chaplains is so great that they can not all be employed at sea, and the range of selection of teachers may be enlarged by taking from their number some who would prefer giving instruction at the school to serving afloat. The object of the department being to make the simplest and most effective arrangement for a school; you will be the highest officer in the establishment, and will be intrusted with its government. It is my wish, if it be possible, to send no other naval officer to the school, except such as may be able and willing to give instruction. Among the officers junior to yourself, there are many whose acquisitions and tastes may lead them to desire such situation. For this end the department would cheerfully detach three or four of the lieutenants and passed midshipmen, who, while they would give instruction, would be ready to aid you in affairs of discipline and government. Thus the means for a good naval school are abundant, though they have not yet been collected together and applied.

One great difficulty remains to be considered. At our colleges and at West Point, young men are trained in a series of consecutive years; the laws of the United States do not sanction a preliminary school for the navy; they only provide for the instruction of officers who already are in the navy. The pupils of the naval school being, therefore, officers in the public service, will be liable at all times to be called from their studies and sent on public duty. Midshipmen, too, on their return from the sea, at whatever season of the year, will be sent to the school. Under these circumstances, you will be obliged to arrange your classes in such a manner as will leave opportunity for those who arrive, to be attached to classes suited to the stage of their progress in their studies. It will be difficult to arrange a system of studies which will meet this emergency; but with the fixed resolve which you will bring to the work, and with perseverance, you will succeed.

Having thus expressed to you some general views, I leave you, with such assistance as you may require, to prepare and lay before this department for its approbation a plan for the organization of the naval school at Fort Severn, Annapolis.

The posts to which you and those associated with you will be called are intended to be posts of labor; but they will also be posts of the highest usefulness and consideration. To yourself, to whose diligence and care the organization of the school is intrusted, will belong, in a good degree, the responsibility of a wise arrangement. Do not be discouraged by the many inconveniences and difficulties which you will certainly encounter, and rely implicitly on this department as disposed to second and sustain you, under the law, in every effort to improve the character of the younger branch of the service.

I am, respectfully, your obedient servant,
GEORGE BANCROFT.

Com'r Franklin Buchanan,
United States Navy, Washington.

Under these instructions the school was duly organized at Fort Severn, Annapolis, and formally opened, October 10, 1846, with 36 midshipmen, appointed in 1840, and who were, before resorting to Annapolis, preparing for examination at the Naval Asylum at Philadelphia; 13 of the date of 1841, who were to remain at their studies until drafted for sea, and 7 acting midshipmen, appointed in 1845. The first staff of instruction consisted, besides Commander Buchanan, of Lieutenant James H. Ward, in gunnery and steam; Surgeon J. L. Lockwood, in chemistry; Chaplain George Jones, in English studies; Prof. Henry H. Lockwood, in natural philosophy; and Prof. Girault, in French.

In 1846, Congress appropriated an amount not exceeding $28,000 for repairs, improvements, and instruction at Fort Severn, Annapolis, Md.; and a like amount in 1847 for the same objects, "including a purchase of land not exceeding 12 acres, for the use of the Naval School." In the same year (Dec. 1847), Secretary Mason recommended a practice ship.

Down to 1849, the regulations provided for two years' study at the School, followed by three years' service at sea, and then two years' study at the School. This alternation of study and practice—of practice at sea associated with opportunities of study, and of study at school with many advantages of testing principles by experiments and the observations of professors and officers of experience, possessed advantages which still commend it to the minds of many officers over that of longer continuous study at school before practice in earnest is begun. The old system had its shortcomings, but it turned out good seamen and gallant officers, and its best features ought to be again engrafted on the new.

In 1849, a board of officers was directed by the Secretary of the Navy to consider the organization of the school at Annapolis, and report to the department. This was done, and new regulations were matured, and ordered to go into effect on the first of July, 1850. The teachers' staff was enlarged, and a practice ship, the Preble, a sloop-of-war of the third class, was attached for the purpose of a summer cruise, and the institution was henceforth styled in Acts of Congress and Reports of the Secretary, the Naval Academy. The course of instruction was arranged for four years, with an interval of two or three months in the summer devoted to a practice cruise for two of the classes. The President was authorized to appoint a Board of Visitors, whose functions were "to witness the examinations of the several classes, and examine into the police, discipline, and general management of the Academy."

The new system began in October, 1850, under Commander C. K. Stribling, as Superintendent, who was relieved in 1853 by Commander L. M. Goldsborough, who was in turn relieved by Captain George S. Blake, in 1857, who continued in the superintendence till 1867, when Admiral Porter was assigned to the position, which he held till 1870, when Commodore J. L. Worden succeeded him.

The first or lowest class in the four years' course, entered in October, 1851, and graduated in June, 1854, having had two summer cruises of practice, and a long period of continuous study.

The necessities of the War, which as early as April, 1861, had made Annapolis the seat of military operations, caused the removal of the Academy—its professors, students, library and apparatus—in the month of May, to Newport, first to Fort Adams, and afterwards to the Atlantic House in the town, and to the *Constitution* and other ships, which were not fit for active service, in the inner harbor. All the members of the three highest classes were ordered into active service, and with the fourth class, and 200 newly appointed, the system of instruction went on as in times of peace.

Course of Studies in 1864.

In the organization of the Naval School at Annapolis, in 1845, the ordering of the course of studies was left practically with Prof. William Chauvenet, a graduate of Yale College, who had been commissioned professor of mathematics in 1841, and had acted as such in the instruction of midshipmen in the Naval Asylum at Philadelphia. The following is substantially the arrangement proposed by him for the classes when fully organized—the main deviation in the course as followed in 1864 was in the assignment of text-books.

FIRST CLASS—FOURTH YEAR.

Department of Practical Seamanship, Naval Gunnery and Naval Tactics.—Seamanship, Naval Tactics. Naval Gunnery; Simpson's Ordnance and Gunnery. Simpson's Translation of Page's Theory of Pointing. Dahlgren's Boat Howitzer.

Department of Astronomy, Navigation and Surveying.—Theory of Navigation. Practical Astronomy. Marine Surveying.

Department of Natural and Experimental Philosophy.—Lardner on Heat. Wells' Chemistry. Main & Brown on the Steam-Engine.

Department of Ethics and English Studies.—Constitution U. S.; Kent on International Law, Vol. I.

Department of Spanish.—Ollendorff.

SECOND CLASS—THIRD YEAR.

Department of Practical Seamanship, Naval Gunnery and Naval Tactics.—Seamanship. Simpson's Naval Gunnery.

Department of Mathematics.—Smyth's Analytical Geometry. Smith's Differential and Integral Calculus.

Department of Astronomy, Navigation and Surveying.—Davies' Surveying. Herschel's Astronomy. Bowditch's Navigation.

Department of Natural and Experimental Philosophy.—Lardner's Optics, Acoustics, Electricity, and Magnetism. Smith's Mechanics.

Department of Field Artillery and Infantry Tactics.—Hardee's Light Infantry Drill. Instruction in Field Artillery.

Department of Ethics and English Studies.—Wayland's Moral Science.

Department of French.—Girault's French Student's Manual. Dumas' Vie de Napoleon. Manesca's Reader.

THIRD CLASS—SECOND YEAR.

Department of Practical Seamanship, Naval Gunnery and Naval Tactics.—Seamanship.

Department of Mathematics.—Davies' Legendre's Geometry. Chauvenet's Trigonometry. Davies' Mensuration.

Department of Ethics and English Studies.—Eliot's History U. S. Quackenbos' Rhetoric. Composition.

Department of French.—Girault's French Student's Manual. Girault's Vie de Washington.

Department of Drawing and Draughting.—Line Drawing.

FOURTH CLASS—FIRST YEAR.

Department of Mathematics.—Greenleaf's Arithmetic. Davies' Algebra. Davies' Legendre's Geometry.

Department of Ethics and English Studies.—Bullions' English Grammar. Cornell's Geography. Worcester's and Lord's History. Composition.

Department of Drawing and Draughting.—Sketching.

CONDITION IN 1864.

The following Report, drawn up by the author of this Treatise, after a residence of several weeks in the institution, as one of the Board of Visitors, exhibits its condition in 1864, and contains suggestions on the educational improvement of the military and commercial marine, which met the approbation of the Board.

Report of the Board of Visitors to the Secretary of the Navy.

SIR:—The Visitors, appointed "to witness the examination of the several classes and to examine into the state of the police, discipline, and general management of the Naval Academy," for 1864, report as follows:—

I. THEIR OWN PROCEEDINGS.

The regular session of the Board, although several members were in attendance earlier, commenced on Monday, the 20th of May, and continued from day to day until Friday, June 10th. Their investigations as a Board, embraced—

First.—A thorough inspection of the buildings, ships, and material equipment provided by the Department for the residence, subsistence, health, and instruction of the several classes.

Second.—An attendance of the whole or a portion of the Visitors, for a brief period at least, on the examination conducted by the Academic Board, of one or more sections of each class in each study professedly attended to during the year.

Third.—An exhibition of the professional knowledge and skill attained, including the parade, evolutions, tactics, and drill as a military corps—the uses of the rapier, cutlass, musket, and cannon, great and small—the handling of ropes, sails, spars, boats, and everything included in practical seamanship in harbor, afloat, and in action.

Fourth.—Inquiries into the mode of conducting the entrance examination, and the results—the classification and programme of studies for each class—scholarship and conduct rolls—causes of failure to graduate, and system of punishment—chapel exercises, morality, manners, and personal habits of the midshipmen—the accounts and vouchers for the expenditure of government appropriations, including payments made for the use of the cadets—in fine, into the police, discipline, and general management of the institution.

A committee of the Board was authorized and requested to attend the entrance examination of the new class, as well as the final examination of the graduating class, in order that the report required of the Visitors might cover the operations of the Academy for the year 1864.

Every facility for prosecuting their investigations was extended to the Visitors by the Superintendent, Officers, Professors, and Students.

II. CONDITION OF THE NAVAL ACADEMY IN 1864.

In presenting some details of the condition of the Naval Academy as they found it, and in offering suggestions for its improvement, which the submitting of a report implies, the Visitors are not unmindful that the institution is not at present furnished with permanent buildings and equipments in all respects adapted to its purpose;—that even such as are furnished were selected with reference to a smaller than the present number of pupils;—that its staff of instructors and course of instruction have been disturbed by the pressing exigencies of a great war, calling off into actual service some of its most experienced teachers;—that the education which it aims to give is not general but special, not covering the whole ground of a generous culture, but particularly adapted to make accomplished seamen and midshipmen;—and, moreover, that in an educational field so wide and subjects of inquiry so numerous as attach themselves to the details of such a school, a brief visit, made while the institution is not following its usual daily routine, is not in all respects the most favorable to the formation of just and reliable opinions. They at the same time believe that the government and people expect that the liberal appropriations in its favor will be expended with a judicious economy, and that the knowledge imparted will be accurate, thorough, and professional, and that its graduates will be really fitted for that rank of the service for which they are professedly trained. They recognize the fact that the school is yet in the youth of its development, and also that its purpose is not only to perpetuate naval science as it has been taught, but to maintain a progressive course of instruction, engrafting thereon all necessary or possible improvements.

Organization for Administration and Instruction.

The Visitors find the Naval Academy, subordinate to the direct supervision of the Department, under the immediate government of a Superintendent, Commodore George S. Blake, who is held responsible for its discipline and management. He is assisted as chief executive officer by the Commandant of Midshipmen, Commander Donald M. Fairfax, who resides in the Academy building on shore, and is also head of the department of Seamanship, Naval

Gunnery, and Naval and Infantry Tactics. The Commandant is assisted in the different departments of his duty on ship and shore by three senior assistants and eleven assistants, nine of the latter being of the rank of lieutenant, and the remainder lieutenant-commanders. Two of the senior assistants have charge of the Practice-ships Marion and Macedonian, and also assist in instruction; six of the assistants are engaged in executive duty on board the School-ships Constitution and Santee, while the others, as well as these, are charged with certain branches of instruction in the department of which the Commandant is chief.

There are also attached to the Academic Staff one Professor of Astronomy, Navigation, and Surveying; two Professors of Mathematics, with six assistants in the same department; one Professor of Natural and Experimental Philosophy, with two assistants; one Professor of Ethics and English Studies, with nine assistants; one Professor of the French language, with an assistant; one Professor of the Spanish language; one Professor of Drawing and Draughting, with an assistant; one Sword-master, with an assistant; and one Librarian, who acts also as assistant in Mathematics, and Ethics and English studies. The officers not attached to the Academic Staff include a Paymaster, a Surgeon, with two assistants, a Chaplain, (with three, who are engaged as instructors,) a Commissary, Storekeeper, Secretary, Treasurer, and clerks to the Superintendent and Commandant.

The Academic Board is composed of the Superintendent, the officers in charge of the Practice and School-ships, and the professors, except that the professors of French, Spanish, and Drawing take part only upon matters pertaining to their own departments. The Board is required to conduct and regulate all examinations of candidates and students, preparing the necessary papers and reports in connection therewith, to prescribe the order and times of instruction, to recommend text-books for the approval of the Naval Department, and books, instruments, and other necessary material for instruction, to recommend at pleasure the restoration or farther trial of students that have been dismissed or found deficient in scholarship, to grant certificates of graduation, and to report from time to time, on the system of studies and instruction pursued, and propose such improvements as experience may suggest.

Buildings and Material Equipment.

The material arrangements for the accommodation of the Academy, for the lodging, subsistence, and comfort of the pupils in health and sickness, and for study and instruction, both scientific and professional, although made on a sudden emergency, for temporary occupancy, and for a smaller number, are far from being insufficient in extent, or particularly objectionable, when compared with similar arrangements for other great schools. The main building on shore is of wood, originally intended to lodge and board a large number of guests, and as adapted to the uses of the Academy, accommodates about half of the classes as well as most boarding schools provide for their pupils. The arrangements are not as convenient or as safe from fire as those at Annapolis; but they are too good to be complained of, even if they do require a strict observance of regulations, or special organization and diligence to protect from fire, which would carry mourning into many homes. Good discipline and good recitations, and a large amount of military and naval knowledge are secured under the difficulties such as they are, which the Department, be they great or small, will, doubtless, remove at the earliest possible moment. In any permanent or temporary arrangement, on ship or shore, while the privacy and comfort of separate lodgings for pupils should as far as practicable be secured, the Visitors recommend that convenient halls be provided, properly ventilated, warmed and lighted, and supplied with the best dictionaries, encyclopedias, and naval histories and biographies—to be occupied for study at certain hours by such pupils as have not acquired the power of concentrating attention, and the habit of solitary study—a power and habit of the highest importance, but very rarely attained. The same rooms might be open to the pupils at certain hours every day for the purpose of reading naval histories and biographies, and for consulting the encyclopedias and other books of reference. The formation of right habits of study and the habit and mode of reading such books to the best advantage should be made a matter of special and frequent inculcation by the head of each department of study.

The lack of suitable buildings for lodging, subsistence, and study, for a portion of the pupils, is supplied by an extension of the School-ship System, first inaugurated on board of the "Plymouth," at Annapolis, in 1849, in our system, although always the main feature in the French system of naval education. The old "Constitution" and the "Santee," properly moored in the harbor of Newport and adapted, are used for the residence and study of the younger classes, which are in this way brought more readily into the daily routine of the school and the service without the vulgar annoyances, to which the youngest classes are almost universally subjected, when lodged in the immediate neighborhood of the next older class. If School-ships are to constitute a permanent, integral feature of the Academy, the details of arrangements for separate lodging and class study require additional attention. For the present, recitations are attended in suitable buildings on Goat Island, near which the ships are moored and reached by covered passages. On this island is sufficient room for all sorts of athletic sports, military drill, and target practice.

The "Macedonian" and "Marion" are used for practice in the evolution of guns and other naval tactics by the several classes. To these are added, at least for the purposes of the summer cruise, the screw steamer "Marblehead" and the yacht "America."

Number of Pupils—Entrance Examination.

The number of pupils belonging to the Naval Academy in the year closing June, 1864, was 458, distributed into four classes, generally according to the period of their connection with the institution, with a staff of 57 officers and instructors. This is an astonishing development of the Academy in respect to pupils, as well as in the number of the teaching staff, and equipment for professional training, since Oct. 10th, 1845, when the Academy found a location at Fort Severn in Annapolis, or since January 1st, 1846, when it was reported to have 36 midshipmen and six professors and instructors, including the Superintendent. To judge of the progressive development of the institution, and of the results of the annual examination which they were appointed to witness, the Visitors deemed it necessary to ascertain the average condition of each class as to age and attainments, at the time of becoming connected with the Academy, and with the general results of the entrance examination—this examination being the only check on the admission of unqualified candidates—no previous examination being held in the districts or States from which they come.

By law and regulations governing the admission of candidates into the Academy, the maximum number of pupils is limited to 526, viz., two for every Congressional district or territory, appointed on the nomination of the member or delegate, from actual residents of the district, if such nomination is made to fill a vacancy duly notified, prior to the first day of July in any year, and if not so made, by the Secretary of the Navy; and twenty-five more appointed by the President, two for and from the District of Columbia, ten from the country at large, ten from the sons of officers of the army and navy, and three from the enlisted boys of the navy. All candidates who receive notice of their provisional appointment must present themselves to the Superintendent for examination between the 20th and 31st of July, or September in case of second appointments. The examination is twofold; first, before a medical board, consisting of the surgeon resident and two other medical officers designated by the Department; and second, before the Academic Board. The candidate must be found, according to the law of 1864, to be between the ages of fourteen and eighteen years—of good moral character—physically sound, well formed, and of robust constitution—and pass a satisfactory examination in reading, writing, spelling, arithmetic, geography and English grammar.

The requisition as to age was advanced from 16 in 1861, to its present maximum in 1864, while the Board was in session, and conforms in that respect to the age which they had decided to recommend. The traveling expenses of the successful candidates are paid.

The Visitors were furnished on application with tables exhibiting the statistics of these entrance examinations from 1851 to 1863 inclusive. From these tables it appears that out of 1,522 candidates, nominated and appointed conditionally, but afterwards examined, 313 or one-fifth of the whole were rejected as unqualified, although the attainments required were such as any graduate of a common school should possess. Of the number (1,209) admitted, 466, more than one-third, failed on the first year's course. Out of the number who failed at the earlier examinations, three hundred and thirty-one were turned back for a second trial, and after floundering along in the lower sections, only a very small per cent. succeeded in graduating. Of the whole number admitted, (1,209,) only 269 graduated, including 93 who were received into the service from 1861 to 1864 before completing their studies.

From another table, covering the entrance examinations from 1860 to 1864 inclusive, it appears that out of 1,093 candidates who presented themselves for admission, 807 were admitted, while 53 were rejected by the Medical Board, 219 by the Academic Board, 11 withdrew, and 3 were found to be over the maximum age.

From another table, exhibiting the ages of the successful and unsuccessful candidates, it appears that out of 1,141 candidates examined, 201 (18 per cent.) were rejected, and of the number rejected, 177 were under 17 years of age. Of the 940 admitted, 313 (33 per cent.) failed the first year, and of the number that failed, 254 were under 17 years of age. The average age of the candidates admitted was 16 years and 2 months, and of those who failed, 15 years and 10 months.

The fact that one-fifth of the whole number nominated failed to pass the examination in the most rudimentary branches of a common English education—and in only the most elementary portions of these branches—indicates unmistakably how little regard has been paid to school attendance and proficiency in the selection of candidates. To judge how far these failures might be attributed to a laudable strictness on the part of the Academic Board, the entrance examination papers, which are filed away from year to year, were called for, and from those it appears that the questions asked and exercises required were few and simple—far too few and simple—far below the requirements of any Public High School; and yet such wretched perversions of the orthography of the most common words, such mistakes in American geography, such bungling use of the English language in the composition of a simple letter, such numerous failures in arithmetical operations not going beyond the elementary rules and simple exercises in fractions and proportion, it would be difficult to gather from all the Public High School entrance examinations of the country. More strictness on the part of the Academic Board would have saved the government hundreds of thousands of dollars, for of the candidates allowed to pass, two-fifths fail on the studies of the first year, although these studies belong to a good English education, and are preliminary to a special scientific naval training—showing a want of suitable preparatory knowledge, of aptitude for study, or of will and desire to learn. A portion of those who fail the first year are put back for a second year's trial, and in some instances for a third, and the proportion of those thus put back who finally succeed in graduating is very small, thereby causing a total loss of the thousands of dollars expended upon each. From data gathered from the annual reports of the Department, it appears the annual expense of a pupil of the Naval school exceeds $1,500, and that each graduate who has been four years in the institution costs the government over $10,000. But the pecuniary loss is not the only consideration—the places filled by pupils, no matter what their courage or general ability, unable or unwilling to profit by the opportunities of scientific and professional instruction so lavishly provided, might be filled by competent, ambitious, diligent, and courageous young men, if they could have had their qualifications tested by a competitive examination.

Daily Routine.

The morning gun calls the cadets up at 6 o'clock. Inspection of the rooms follows, when the bedding must be found arranged, the rooms swept, and every thing in order. Ten minutes are given to chapel services, and half an hour to breakfast, which is over at 7.15.

Forty minutes recreation are then allowed, during which sick-roll is called and such as report themselves indisposed are marched to the hospital and reported to the surgeon. At 7.55 the sections are formed under the supervision of the Officer of the Day, assisted by the section leaders, and at 8 o'clock, on given signal, they are marched in close order to their recitation rooms, in perfect silence and with strict military decorum. All who are not engaged in the recitation rooms are expected to be preparing their lessons in their own rooms, and it is the duty of the superintendents of floors to see that they are there. The dismissal and re-formation of sections at the end of each hour are conducted with similar formality and regulated by special signals. Study and recitation continue until 1 o'clock, when the cadets are formed in order by the captains of crews, (the whole corps being organized in nine guns' crews, for the purposes of discipline and practical instruction,) all special orders and rules for the day are read, and they are then marched into the mess hall for dinner, which occupies forty minutes. From 1.40 to 1.55 recreation is allowed and the sections are then again formed as in the morning for recitation and study. At 4 o'clock ten minutes are given to preparation for drill, as may be the order of the day, and then follow instruction in fencing, infantry or artillery drill, and recreation until parade and roll-call at sunset. Supper immediately succeeds, to which half an hour is given, and recreation until study-call at 6.30 or 7.00, according to the season. Study hours continue until tattoo, at 9.30, during which time the cadets must all be in their rooms, and after inspection of rooms all lights are extinguished at 10 o'clock.

The routine on board ship is as far as possible the same. No control is exercised over the occupation of the time by the cadets during study hours, provided good order is preserved. No studies or exercises are required on Saturday afternoon and one-half of each class may then be allowed liberty beyond the limits of the Academy. A vacation is given at the close of the second year, the only one in the whole course. As means of recreation, chess, draughts, and all games of chance are strictly forbidden. On the other hand, every facility is afforded for games of ball, boxing, fencing, boating, &c.

Course of Instruction, Examinations, and Merit-Rolls.

The course of instruction at the Naval Academy is comprised in eight departments, with their special branches, as follows:—

First Department, in six branches—Practical Seamanship, Theory and Practice of Gunnery, Naval Tactics, Infantry Tactics, Howitzer Drill, and the Art of Defense.

Second Department, Mathematics, in seven branches—Arithmetic and Algebra, Geometry, plane and solid, Trigonometry, Mensuration, Descriptive Geometry, Analytical Geometry, and the Differential and Integral Calculus.

Third Department, in four branches—Astronomy, Practical Astronomy, Navigation, and Surveying.

Fourth Department, in eight branches—Mechanics of Solids, Mechanics of Liquids, Pneumatics, Acoustics, Electricity, Heat, Chemistry, and the Steam-Engine.

Fifth Department, in seven branches—English Grammar, Descriptive Geography, Physical Geography, Outlines of History, Rhetoric, Ethics, and Political Science.

Sixth Department—the French Language.

Seventh Department—the Spanish Language.

Eighth Department—Drawing and Draughting.

These studies are distributed into four annual courses for the four regular classes, each class being subdivided into convenient sections, usually according to the relative standing of the members. During the last year the first class, of 36 cadets, has been graded into three sections; the second class, of 59 cadets, into five sections; the third class into six sections; and the fourth class, during the first term, with 176 cadets, into fourteen sections, and in the second term, with 156 cadets, into twelve sections—each section receiving separate instruction.

The more difficult portions of the several branches may be reserved for the higher sections of the classes, and it is frequently the fact that in certain branches no instruction whatever is given to the lowest sections. Deviation from the general rule for the admission of cadets only in the month of September has made the formation of "Intermediate Classes" necessary, so that there are now two divisions of the second class and two divisions of the third class. By this means the number of sections is increased, the labors of instruction augmented, and much inconvenience in other respects created. The demands of the times have also introduced other irregularities into the course, hurrying the more forward sections through their studies and detailing them into active service at the close of the third year, with or without a graduating examination, while the lower sections are retained through the whole four years.

The Commandant of Midshipmen and the several professors are each at the head of a special department, with such assistants as may be necessary. The professors, instructors, and assistants are responsible for the regular and orderly conduct of their respective classes and sections while under instruction, and must report all want of preparation, absence, or misconduct. Daily notes are taken of the progress and relative merit of each pupil in each of his studies. The assistants must make weekly reports of such notes to the heads of their departments, who in turn report to the Superintendent, recommending such transfers as should be made from one section to another. The scale of daily merit in each study embraces seven grades, with corresponding values designated by numbers, as follows:—Thorough, (4.0)—Very Good, (3.5)—Good, (3.0)—Tolerable, (2.5)—Indifferent, (2.0)—Bad, (1.0)—Complete Failure, (0.) The average standing for the week in each study accompanies the report. Monthly reports are drawn up by the Academic Board for each month in the academic year, showing the relative standing of the members of each class in their different studies, and also their conduct or demerits. These reports are based upon the weekly reports and upon the results of the examinations, when such are held within the month, and are posted for public inspection. The examination weeks are considered of equal weight with those of the month.

The examinations are held by the Academic Board in the months of February and June, and are sufficiently thorough to enable the Board to decide upon the proficiency and relative merits of the members of the several classes. After each June examination a "general merit-roll" is formed for each class, for which purpose a maximum number or value is assigned to each of the principal branches in the several departments. The total amount of these maxima throughout the course is 1,000, and they are distributed among the departments and branches, for the different classes, as follows:—In the first year, to mathematics, 20—grammar and rhetoric, 10—geography, 10—history and composition, 10—drawing, 10—conduct, 5—total, 65;—In the second year, to seamanship, 20—mathematics, 35—grammar and rhetoric, 15—history and composition, 10—French, 30—drawing, 25—conduct, 15—total, 150;—In the third year, to seamanship, 40—gunnery, 20—infantry tactics, 25—howitzer drill, 20—mathematics, 45—general astronomy, 25—practical astronomy, navigation, and surveying, 15—mechanics, 30—physics, 25—moral science and international law, 20—French, 40—conduct, 30—total, 335;—In the fourth year, to seamanship, 100—gunnery, 60—naval tactics, 30—practical astronomy, navigation, and surveying, 75—physics, 30—steam-engine, 35—moral science and international law, 20—Spanish, 50—conduct, 50—total, 450. The minima values are fixed at one-third of the corresponding maxima.

The "general merit-roll" includes only such as pass a satisfactory examination in all the principal branches of their class and have not exceeding 200 demerits recorded against them. In the formation of the roll, the individual having the highest standing in any branch for the year receives the corresponding maximum number, while the one who has the lowest standing receives the corresponding minimum. The intermediate members of the class receive numbers proceeding by equal differences from the maximum to the minimum, in the order of their relative merit as fixed by their "class merit-rolls." The gradation for conduct is determined by allowing the maximum number to such as have no demerits, and for others diminishing that maximum by $\frac{1}{300}$ part for every demerit recorded against them. All the numbers thus assigned to the several members for the different branches of study and for conduct are then added together, and the members are arranged in each class according to the aggregates thus obtained. For the graduating class a "graduating merit-roll" is formed by adding the aggregate numbers of each member upon the several "general merit-rolls" for the four years and arranging the order of the members according to these new aggregates. The highest number reached upon the "graduating merit-roll," by any one of the class just graduating, was 859.

If any student at any examination fails to pass a satisfactory examination in any principal branch, or has recorded against him more than 200 demerits since the commencement of the academic year, a report is made of the case to the Secretary of the Navy, showing the habits of study, aptitude for study and for sea duties, and his general habits and conduct, and upon his decision the student is dismissed, or upon recommendation of the Academic Board, allowed to continue at the Academy for further trial.

The final graduating examination is held by a special Board and occurs, by a recent regulation, not less than one year after the close of the course. This examination embraces seamanship and naval tactics, practical gunnery, navigation, and management of steam-engines, and the standing in these branches is combined to determine the relative merits of the candidates. In assigning numbers, 1,000 is considered the maximum and 333 the minimum for such as are considered qualified for promotion, and the Board assigns such numbers within these limits as will fairly express the relative qualifications of the members of the class. The numbers thus assigned, when added to the numbers already assigned on the "graduating merit-roll," determine the standing of the graduates as ensigns; the highest number taking precedence.

Text-Books. Studies of the past Year.

The method of teaching as at present pursued is almost wholly by means of text-books and recitations. A series of lectures is delivered in connection with the recitations in Natural Philosophy and Chemistry. Without underrating the office of the text-book, the success of the French Polytechnic method of teaching even the higher Mathematics by lectures, collateral study, and examination, and the experience of all schools, of the power of the human voice and of the human eye to win, hold, and harmonize attention, should not be lost to this institution, many of whose pupils need the influence of such a method to vitalize their powers of thinking and to bring within their grasp the general principle or doctrine of the subjects taught.

The division of the classes into small sections of 12–14 midshipmen each, of nearly equal standing, tends to secure the personal and thorough instruction of each and all. The attempt was made, by furnishing prepared blanks to the several departments, to ascertain the character and actual amount of the studies and exercises accomplished by the several sections during the eight months of study of the year 1863–4. The returns made are not complete, but it appears that the English studies of the lowest class (in 12–14 sections) have consisted of one lesson a week in Spelling and Derivation, four in Bullion's English Grammar, four during the first term in Cornell's Geography, and during the second term in General History, with daily exercises in Composition and the exercise of the Voice; in Mathematics, five lessons a week during the first term in Greenleaf's Common School Arithmetic, and during the second term in Davies' University Algebra. In the upper sections, the Algebra was commenced within the first term and more or less nearly finished at the close of the year. The highest section had also five lessons a week for three weeks in Davies' Elementary Geometry (5 books) and instruction twice a week in Drawing. The space in the several text-books actually gone over varied considerably in the different sections. It will be seen, therefore, that the studies of this class, with the exception of Algebra and Geometry, are simply those of every common school, and yet the lower section is reported as having succeeded but "imperfectly" in Grammar, and "very imperfectly" in Algebra. It is also to be stated that a part of the class had received eight weeks additional preparatory instruction during August and September, 1863.

In the third class, of six sections, there were three lessons per week, during the first term, in American History, and during the second term in Rhetoric. The lower section prepared six English compositions each term—the highest section, weekly compositions through the second term. All the sections prepared three lessons weekly in French during the first term and four lessons during the second, but with very unequal progress. In Mathematics, (five lessons per week,) Algebra was completed by the lower sections and reviewed by the higher in the first four or five weeks, when Elementary Geometry was taken up by all, and completed in the first term by the highest section. In the second term, Elementary Geometry for three weeks by the lowest section, and Trigonometry for the rest of the term—in the highest section, Trigonometry for ten weeks, Mensuration two weeks, and Analytical Geometry commenced, for three weeks. The first section had also three lessons a week in Marine and Topographical Drawing, and during the first term one lesson a week in Seamanship.

In the second class, of five sections, during the first term, five lessons a week in Analytical Geometry, replaced in the highest section by the Differential and Integral Calculus for five weeks; four lessons a week in Statics, to which the first section added Dynamics, three weeks; five lessons a week in Surveying, three weeks in each term, with practical exercises. The lowest sections had also four lessons a week in French, and the first section weekly lessons in Seamanship and Infantry Tactics, and two lessons a week in Gunnery. In the second term, five lessons a week in Dynamics, Hydrostatics, Pneumatics and Acoustics, with twelve lectures, Surveying, three weeks, and Astronomy, ten weeks. Two lessons a week in Wayland's Moral Science. The first section had also two lessons a week in Gunnery.

The first class, consisting of the three more advanced sections of the second class, and in its third year of study, during the first term were pursuing chiefly second class studies, having five lessons a week in Physics, including Statics, Dynamics, Hydrostatics, Acoustics, Magnetism, and Electricity, with sixteen lectures; four lessons a week in Theory and Practice of Navigation (six weeks) and General Astronomy (eleven weeks;) two lessons a week in Seamanship, and two in Gunnery, Naval Light Artillery, and Field Fortifications. In the second term, four lessons a week in Heat and Chemistry, with nine lectures; three in Wayland's Ethics and Kent's Constitution of U. S., and International Law; three in the Theory and Practice of Navigation; two in Seamanship; and one in Gunnery, &c. Two lessons a week were given through the year in Spanish, by means of the French.

In addition to the daily lessons of each class are the general practical exercises by divisions, by the higher classes on shore embracing daily exercises in Fencing, three exercises weekly in Infantry Drill, Howitzer Drill once a week, the Great Gun Drill upon the Practice Ships twice weekly in favorable weather, and a certain amount of Target Practice by the first class. The younger classes on the school-ships have also their special drills. Special instruction is given them in boating, and the numerous cutters and launches belonging to the ships afford ample opportunity for recreation and practice of this kind at suitable times. The use of the "Rainbow," a schooner-rigged craft of 15–20 tons, is also not unfrequently allowed to pleasure parties made up from the cadets. Weekly bathing is enjoined and practiced throughout the year as a sanitary regulation, but the absence of the cadets from port during the summer months, while on the cruise, prevents the attainment of that knowledge and skill in the art of swimming, which seem to the Visitors so essential a requisite.

The general results of the examinations and exercises as observed by the Visitors, may be stated as in general very favorable. The examinations of the classes were made by sections and conducted by the individual professors of the departments, with great fairness and impartiality, without any purpose of embarrassing the pupils, and for the single object of eliciting the extent, accuracy, and vividness of the pupil's knowledge of the topic. Written lists of questions were furnished to the cadets on entering the examination rooms, which were usually answered in writing upon the blackboard, with opportunity for oral explanation. The difference in the proficiency shown by the higher and lower sections, in all except the first class, was very strongly marked. In the written answers, the writing was fair and legible, and the spelling and composition very creditable—revealing in these respects an immense improvement upon the entrance examination papers of the same cadets. The Visitors would suggest that in future examinations there should be more of paper, even if there should be less of blackboard work, and that a portion of the questions should be handed in on slips by the Visitors and answered in writing with ink, in presence of the Board, by every member of the section present.

The practical professional exercises of the cadets upon the parade ground and on board ship, embracing all the different branches of shore and ship duty, (including a harbor cruise on board the Practice Steamer,) and designed to exemplify the proficiency of the classes in seamanship, gunnery, and naval and infantry tactics, were performed in the most satisfactory manner, justifying the professional pride manifestly felt by those taking part in them. Moreover, these exercises, instead of being executed under the direction, as heretofore, of the respective Academic officers in command, were conducted under the charge wholly of officers appointed from the midshipmen themselves.

Physical Training.

The unavoidable exposures and risks of the naval service require not only a sound mind—a mind well informed, quick, and accurate in its operations, but a sound body—a body supple, athletic, and tough to resist the rapid alternations and continuous exposures of wet and cold weather. Although careful and continuous training can do much to develope and strengthen the qualities referred to, the records of the Academy and of the service, as well as the present appearance of many of the cadets, show that sufficient regard has not been paid to vigor and elasticity of physical constitution, in the original appointment, or the entrance medical examination. The regular military drill and evolutions, the small arm and other exercises, in which the whole corps participates, the professional practice in gunnery and seamanship, all help to supply these deficiencies. There is still room for more careful scrutiny for inherited tendencies and hidden defects, in the entrance medical examination, as well as in the regular course of naval education, for a well arranged system of gymnastic exercises and athletic games, to give suppleness to the joints, steadiness to the nerves, hardness to the bones, and elasticity to the sinews. Such games and sports as the young universally accept with eagerness and pursue with unflagging interest, should be systematically introduced. Ample time, room, and encouragement by rank, prizes, and publicity, should be given to make a fondness and indulgence in such games as cricket, foot-ball, leaping, boating, &c., the habit of every member of the lower classes at least. An hour a day devoted to these healthful sports, even if taken from the study and class-room,—even more, if taken from the idle lounging, or the listless walk, or vulgar scuffling, will give at once health and strength, increased capacity for study, and valuable social qualities and manly virtues—all results of emphatically the highest professional value.

As part of the physical training of naval cadets, the expansion of the chest and the culture of the vocal organs should receive more special attention than the word of command on parade, and the questions and answers in the examination would indicate they had received. A clear, full, decisive voice is an element of influence on the deck at all times, and of power in the hour of danger, as well as on the field or in the senate chamber.

The first beginning of habits, secret or open, which waste the vigor of the mind and body, should be watched with professional skill as well as parental interest, and those cadets in whom such indulgencies have grown into habits, should be cut off from the institution and service without hesitation and without reprieve.

Domestic and Sanitary Arrangements.

The institution is peculiarly fortunate in having had for years a Commissary who understands his business and gives universal satisfaction to all concerned. The neatness of the kitchen, the supply, preparation, and serving of the food; the geniality, good order, and enjoyment of the mess-hours, and the fact that no complaint reached the Visitors from any one of the 450 boys, blessed with good health and plenty of physical exercise, makes the record of this department an exception to similar departments in other large collegiate institutions. This comes from having the right man in the right place.

The hospital arrangements on shipboard and on shore, although not as large and quiet as would be desirable or as would be provided specially in permanent quarters, are sufficient for the demands on their accommodations. The location of the institution and the judicious arrangement and management of the Academy as to cleanliness, exercise, and diet, as well as the presence of a surgeon and two assistants on the Academic staff, and numerous attendants for hospital service, would seem to act as a preventive of accidents and disease, the mean daily percentage of sick on ship and shore from Oct. 1st to May 31st being returned at a little more than three per cent. out of an average attendance of 447 midshipmen. In calling for the annual reports to the Department of the medical condition of the institution, the Visitors were informed that a duplicate copy or abstract was not retained. Such copy or abstract would be highly convenient, and would seem to be even necessary, if it is deemed advisable to have a periodical inspection of the sanitary condition and requirements of the school.

Religious Observances and Instruction.

The regulations require that the students shall be assembled in the chapel for prayers daily, fifteen minutes before the breakfast hour, and that divine service shall be held on Sunday, which officers and students are expected to attend, unless excused on the ground of conscientious scruples, declared in writing by the former, and by the parents or guardians of the latter. These daily and Sunday exercises are conducted by the regular Chaplain of the institution. He is at the present time assisted in these and other such voluntary religious labors by three other chaplains of the Navy, who are now in residence as assistant professors. There are four Bible classes composed of cadets, and over one-eighth of the members are communicants in the different denominations of Newport. The student who brings, in his moral culture from home, religious convictions and habits, can easily preserve and strengthen them here, and no amount of instruction in the institution can compensate for the neglect of parental example and teaching in this respect. The absence of the religious element in the character and training of youth is a fundamental defect, and no institution of learning, special or general, can safely, for any length of time, dispense with appropriate and adequate means of religious instruction and a practical recognition of religious obligations, consistent with due regard to the religious convictions of individuals and the equal rights of all religious denominations. Such individual convictions and denominational rights can be best respected, not by ignoring the subjects themselves, but by selecting the chaplain from time to time so as to represent different religious denominations, and in all cases, in reference to his ability to be useful as chaplain in this institution.

The reading of the Sabbath, and one of the exercises of Monday morning might be so arranged as to harmonize with the religious observances and uses of Sunday, and the whole be made to unfold and enforce the great, definite, and unchanging obligations of every human being to his fellow-men, to his country, and to God.

As part of the religious and moral instruction of the Academy, more at least should be attempted to prevent, and if these unfortunately exist, to eradicate certain vulgar and vicious habits, whose beginnings are small, but which ultimately take complete possession of the individual. Although the Visitors can not, from their own knowledge, speak of its existence, they have had too many assurances from those who did know, to have any doubt of the prevalence of the vulgar and immoral practice of profanity, and that several of those addicted to it are among the youngest members of their classes, who came here entirely pure in this respect. The medical and police experience of the institution detects the occasional existence of other tastes and habits more directly affecting the health and morality of their victims, and which should and doubtless do receive the considerate and vigilant attention of the authorities, especially of the Chaplain, Surgeon and Superintendent.

Discipline.

The Superintendent is charged with and held responsible for the good order and discipline of the Academy, and it is made the duty of every officer, professor, and instructor, having knowledge of any violation of law or regulation, or of any crime, irregularity, neglect, or other improper conduct, of which any student or any other one has been guilty, to report the same without delay to the Superintendent. Offenses are defined with great minuteness and precision, and the circle of punishments embraces demerits on the roll of conduct, private and public reprimand, confinement to Academy grounds, to room, or to guard-room, and withdrawal on necessity, or dismission. In the administration of discipline, the Superintendent is clothed with much power, which is exercised by the present incumbent with great discretion and the happiest results. The private memorandum and letter book of this officer, respecting every case of discipline during the year, was placed before the Visitors, and they can bear willing testimony to the preventive admonition and parental regard with which he has exercised his authority.

Demerits, to be considered in making up the conduct-rolls, are assigned for all offenses. Such delinquencies as are not deemed deserving of severer punishment are grouped into four classes, which count ten, eight, six, four, and two demerits respectively, besides a miscellaneous class counting from one to ten demerits according to circumstances. The *total* demerits of each cadet is expressed by the sum of all demerits standing against him on record for the year, increased for the third class by one-sixth, for the second class by one third, and for the first class by one-half.

No punishment of any kind can be inflicted by other authority than that of the Superintendent. Report is read at evening parade of all demerits and other punishments that have been inflicted during the day, and opportunity is always given for excuse or explanation. Full record is made of every case of discipline, and a monthly conduct-roll is publicly posted showing the number of demerits against each cadet. It is evident that this conduct-roll does not fairly represent the character and conduct of the cadets, as a large number of demerits may be gained by numerous minor offenses, which involve neither immorality nor lawlessness, while a cadet who has been guilty of most flagrant acts of vice and disobedience may still be charged with but few demerits. Yet the conduct-roll has but a subordinate influence in determining the general merit-rolls, and in the question of dismissal the fuller record of punishments, as well as the demerit-roll, has its weight in determining the action of the authorities.

Financial Affairs.

All money appropriated for the support of the Naval Academy is drawn for by the Paymaster and by him deposited with the Sub-Treasurer in Boston. The Paymaster draws upon him, from time to time, to make his disbursements.

The principal heads of expenditure for the fiscal year ending June 30th, 1864, are as follows:—

Pay of Commissioned and Warrant Officers, Midshipmen, Seamen, and others, . .	$241,771.71
Pay of Professors and Asssistants, . .	35,000.00
Expenses of the Academy, School and Practice Ships, Surgeon's necessaries, contingent expenses, and repairs of all kinds, . . .	72,753.84

The total of all expenditures from 1st July, 1863, to May 31st, 1864, is reported at $383,419.41.

From the pay of the midshipmen, which is $500 per annum, $100 are reserved yearly to be paid upon graduation, though this sum is sometimes diminished by unavoidable circumstances. There is also deducted from their pay, the amount of board—at present $16.50 per month—and $3.00 per month for washing. The aggregate of these sums is paid monthly by the Paymaster to the Commissary. Articles of clothing for the midshipmen are provided under contract by the Storekeeper with the approval of the Commandant. All other articles for their use are purchased by the Storekeeper, from funds provided by the Paymaster, at prices sanctioned by the Commandant.

The midshipmen receive such articles as they desire upon requisition approved by the Commandant, and no other articles are permitted to be sold to them than those which the Storekeeper is authorized to have. Each midshipman has a pass-book in which his purchases are entered, and regular report is made by the Storekeeper to the Paymaster, who charges against each the aggregate amount of his purchases. On the 30th April, 1864, the amount of balances still due to the midshipmen was $44,579.93, the aggregate of indebtedness by them being only $111.90. The amounts to the credit of the members of the graduating class vary from $180 to $400.

The accounts of the Commissary are examined quarterly by a committee of three officers appointed by the Superintendent, to whom they make report. The Visitors deemed it their duty to go behind the reports of this committee, and deputed one of their number to examine personally the original accounts of the Commissary and Storekeeper. As the result of this examination, which was conducted with the most rigid scrutiny, it is but justice to state that they found the accounts correct in all their details, and the prices of all articles as low as they can be purchased at wholesale in the city of New York, and the Visitors consider the financial affairs of the Academy as conducted with commendable skill and fidelity.

While the Visitors bear willing testimony to the fidelity with which the financial affairs of the Academy, as well as the departments of subsistence, discipline, and instruction, are and have been administered, they can not but express their disappointment at the very small number of officers of the lowest rank which the institution has contributed to the naval service. With an aggregate annual expenditure of several hundred thousand dollars, the aggregate number of graduates, since the opening of the four years' course, in 1851, including the three classes of 1858, '59 and '60, which were ordered into active service in 1862 and '63, before completing their studies, is but 269, or at the rate of less than 22 each year, at an expense to the country of over $12,000 for each graduate. If the 93 who entered the service with only two or three years' residence had completed their course, the aggregate expense for each graduate would have exceeded $15,000. This, as it appears to the Visitors, small result, is due mainly to the want of care in selecting candidates, and the very low standard of general scholarship required for entering the Academy. The experience of this institution is the same as that of others of the same character; any mode of selection which does not test in advance the natural aptitude and preparation for the special studies of the course, and exclude rigorously all who are found deficient, will burden the institution with a number of students which will have to be thrown off after months and sometimes years of struggling to incorporate them into the regular classes and to the manifest injury, in the meantime, of the scholarship and character of the institution. While a nomination by patronage, and a pass examination have a direct tendency to reduce the average ability of the selected candidates to the minimum required, a competitive examination raises the general average to the maximum ability of all who apply.

Graduating Class of 1864.

The present graduating class (consisting after the final examination of 31) at the close of its third year has completed the whole course prescribed, excepting that the Calculus has been omitted and that Surveying has been limited to instruction in Harbor and Coast Surveying, from Bowditch. Steam and the Steam-engine have received fuller attention from this than any preceding class, embracing six weeks of theory and practice on board of the steamer Marblehead —altogether too little attention for a department so important. Two summer cruises have been made by this class—both coast cruises—the first on board the John Adams, from June 6th to Sept. 30th, 1862; the second from 16th June to 25th Sept., 1864, in which the following vessels were united, viz.: Flagship Macedonian, sloop of war Marion, screw steamer Marblehead, and the yacht America. Upon these cruises the midshipmen were practiced in all the regular duties attaching to the posts of lieutenant and master, taking by turns upon themselves the working of the ship, in the different vessels; making and calculating observations for determining the ship's position, going through all possible manœuvres and performing the duties incident to the management of ships in action, in heavy weather, or in the many emergencies which arise requiring superior skill in seamanship. They were engaged in instructing the crews in gunnery, in infantry and sword-drill, and in drill of the battery. They were also detailed for actual boat service, and for the transferring of howitzers and marines from ship to shore. During the last cruise Meyer's code of signals was used by the graduating class as signal officers, in communicating from vessel to vessel in the fleet, and instruction was also given in the Naval Code of signals, and in Navigation throughout the cruise to all cadets on board. In addition to these cruises the yacht America, in charge of cadets of this class, as commanding officers, has been engaged in the performance of despatch-boat duty, and also special "coast picket duty" in search for the Tallahassee.

The experience of this class—made up of three advanced sections of what is now the second class (the graduating class of 1865,) would seem to indicate, that under a system of appointment that should admit from the start only those who had maturity of mind and requisite scholarship, the professional studies of the Academy might be completed in three years. This is one year longer than the course of the French Naval School at Brest, the entrance examination of which would exclude most of the graduates of our Academy.

III. RECOMMENDATIONS.

The Visitors close their report with the following suggestions, as the results of their examinations and conferences, in reference to the further development of the Naval Academy and the extension of nautical education generally, for the consideration of the Department.

I. Until the pupils of the Naval Academy have gone through the theoretical and practical course of instruction provided in this institution expressly to qualify them to act as Midshipmen, the Visitors recommend that they be designated as *Naval Cadets*—simply *candidates* for the lowest official rank in the Navy—and that no cadet be rated as midshipman, no matter how well up he may be in his studies, until he has had at least eighteen months of professional practice afloat, towards which time the actual time at sea of each experimental cruise shall be credited.

II. As the most direct blow to the hindrances which practically exclude a large portion of the youth of the country, no matter how strong may be their predilection or great their acquired fitness for the naval service, from even a chance of being admitted to this national school;—as the most effectual preventive of the disappointments now experienced by individuals and families in the failure of many appointees to pass the entrance examination, or to meet even the low requirements of the first year's course;—as the only effectual way of ridding the institution of the low average ability and attainments which characterize the lower sections of every class, and of bringing up the talent and scholarship and conduct of the whole corps to the average of the first two sections;—as a sure guaranty against the early resignation of officers educated at the public expense for a life service in the Navy, and of a progressive and honorable career as long as life and health last;—as a powerful attraction to draw to this department of the public service a fair share of the best talent and loftiest ambition of the youth of the country, and as a stimulus to their best efforts for self and school improvement for this purpose—the Visitors recommend the immediate abandonment of the custom of selecting candidates for admission by individual patronage, in consideration of neighborhood, relationship, or party connection, or the better motives of the poverty or the public service of parents, and that all appointments be hereafter made in consideration of the personal merit of the applicant, ascertained by a public competitive examination, conducted before an impartial tribunal, constituted as shall be prescribed by law. Admission, sought and obtained in this way, will be honorable to the successful candidates, a source of pride to the neighborhood and State from which they come, a reward to the teachers who have prepared them, and a stimulus to the industry and good conduct of their comrades at home. The classes of the Academy, replenished every year by new recruits, all of whom have sought the service from personal choice and won their place by personal merit founded on natural aptitude and vigor of mind and acquired knowledge, and who regard the diligent improvement of these opportunities of professional study and practice as the true road to honorable promotion hereafter, to be gained by farther industry and devotion—will at once have an average ability and scholarship equal to that now attained by only five or six out of every one hundred, and a large proportion of the cases of discipline, the "dead weights," the reëxaminations, and the failures from inability, distaste, or want of preparatory knowledge, will forever disappear from the records of the Academy.

These suggestions have not the merit of originality nor the objections of novelty. The principle recommended has stood the test of seventy years' trial in France in naval and similar public schools, and is now in successful operation in England, as well as in most of the military schools of Europe. It has been again and again urged by thoughtful friends of this institution and of our other national school at West Point, as the most effectual remedy for the evils complained of. The Academic Board of this Academy, in answer to a request from a committee in 1858 for its opinion on this point, replied:—"The Academic Board has long been of the opinion that the present system of appointing midshipmen without care in their selection, was undermining the very existence of the institution. The records of the Academy show that scarcely more than one-fourth of those admitted graduate. The fault lies with the appointing power, which has not kept the institution supplied with the proper material, and the Board has been powerless in applying a remedy. It has done all in its power by recommending a higher standard of proficiency." The Visitors for 1862, in the Report of their examinations, remark:—"After a careful examination of the subject, the Board has been forced to the conclusion that the selection of candidates has not been made with sufficient reference to the wants of the public service, but has been and continues to be regarded as a portion of the patronage of the members of Congress making the nominations. The evil does not stop here; for in many cases, after they have been appointed without regard to talents or fitness, and have obtained admission to the institution, and subsequently have been found incapable to pursue the studies of the class to which they belong, the influence of the same member of Congress originally nominating them is successfully used to continue them at the institution, in obtaining authority for them to re-*commence their* studies by joining a lower class; thus retaining those wanting in talents and fitness, to the exclusion of others of suitable qualifications that might be presented. An institution like this, in which the students are educated and supported by the government, ought to have them selected from the highest and most promising youths of the country."*

The same general principle, selection by merit, ascertained by the same general method, competitive examination, conducted on such conditions as Congress shall authorize or prescribe, has been recommended for appointments to the kindred national institution—the Military Academy at West Point—with the view of removing the same hindrances and remedying the same defects in the practical working of that school. That eminent military teacher and administrator, General Thayer, under whom the Academy, notwithstanding many hindrances and defects, attained its highest development, recommended the adoption of this principle at the outset of his administration, after having seen its successful operation in the military schools of France; and he has recently, after the lapse of nearly fifty years, all of them spent in actual experience or observation of the practical results of a different principle, renewed the recommendation in a communication to the Secretary of War. He has, within the present year, declared his belief that the adoption at the start, and the continuous recognition of this principle, the selection of candidates for admission on the ground of personal merit and aptitude for the special purposes of the institution, in appointments to the Military Academy, would have more than doubled its usefulness, would have avoided most of the difficulties of administration which it has encountered, would have prevented the popular prejudices which demagogues and disappointed parents and Congressmen have fostered, and would have gained for it a larger measure of the popular favor.

The Visitors of the Military Academy for 1863, in their Report to the Secretary of War, go into an extended discussion of the advantages and objections to this principle and mode of making appointments. To this document reference is made as embodying the convictions of this Board as to the probable working of the same principle in admissions to the Naval Academy.

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* An early friend of this institution, on learning the fact stated in the same Report of 1862, from which the above extract is taken, "that in the course of six years one hundred and twenty-four students were turned back to pursue a second time portions of the academic course," and of this number only six passed the final examination, (thereby costing the country over $300,000 in pay, salaries, and equipment, for absolutely nothing, and at the same time depriving the naval service of an equal number of competent young officers,) writes to a member of this Board as follows:—"I have had the curiosity to question fifty middies, as I happened to meet with them, without selection, and representing different classes in the institution and different States, as to the circumstances of their appointment—and of these fifty, forty were the near relations or sons of political friends of the parties making the nominations, and five were the sons of persons in official stations at Washington, although appointed 'at large,' leaving but five for selection from other sources. In several cases the answers were significant—'My father had to bleed freely for my appointment.' 'My brother worked hard for his election.' 'I had the promise of a cadetship at West Point, but as there was no vacancy that year, I got an appointment here.' 'I am an exchange. Senator —— got an appointment for Mr. C.'s nephew, and Mr. C. nominated Senator —— friend's son for the place.' "—[*Ed. of Amer. Journal of Education.*]

III. In connection with a change in the mode of appointment, the Visitors would commend to the consideration of the Department a revision of the conditions as to the age, bodily vigor, and general knowledge of candidates. The old sytem of training naval officers, by placing boys at the early age of twelve or fourteen years on shipboard in the daily and constant practice of the routine of the ship, when accompanied with the parental oversight of the captain as to conduct, and with regular and progressive instruction in the science and art of his profession, on ship and shore, by the teacher of mathematics and navigation—has produced many capable commanders, out of the larger number who have been ruined for the want of proper supervision and instruction, or grown up into men of mere routine. Some of the brightest names in the records of our own and of the English naval service had no other education or training than this. But these are the exceptions, and their success was as much due to opportunity and original genius, as to their early and continuous ship experience. That system of training officers is, however, everywhere abandoned, and the present aim of every naval power in the world is to seek out young men having a fondness for sea-life, with a generous ambition for naval distinction, with an aptitude for the sciences which qualify and adorn the naval officer, with vigor of body to bear the inevitable exposures of the service, and with a large amount of general knowledge, and then subject them to a special course of professional study and practice in a naval school. For every stage of promotion, additional knowledge as well as professional experience, tested by successive rigid examinations, are required. The experience of this class of schools indicates that those original qualities and acquired qualifications deemed indispensable in candidates for the proper mastery of a thorough course of naval instruction, can not often be found in young men under eighteen years of age.

IV. With an advance in the average age, maturity of mind, and preparatory attainments of the cadets on admission, the Visitors believe a revision and readjustment of the subjects and course of instruction can be advantageously made, which in connection with the new schools of naval construction, and of marine engineering, would greatly extend the range, depth, and practical value of the education of the naval officer, without prolonging the time now devoted to its acquisition. If the Academy can be relieved of the large amount of merely elementary general education which every graduate of the common schools of the country ought to have received, and which in a few years every aspirant to the privileges of this school would contrive to get, if the law made its acquisition necessary as a preliminary to a competitive examination—then the whole general scientific course could be mastered in two years, with a large amount of military and naval tactics, as well as of practical seamanship in the two summer cruises. At this point the Visitors recommend to the consideration of the Department the establishment of the following departments, or schools, in each of which the course of instruction shall be far more comprehensive and thorough than is now practicable where the branches constitute parts of a single course:—

First.—Of Navigation and Seamanship.

Second.—Of Naval Ordnance and Practical Gunnery.

Third.—Of Hydrography, Marine Surveying, Astronomical Observations, Construction of Charts, &c.

Fourth.—Of Drawing, Naval Designs, Construction of Ships, Naval Machinery, Docks, &c.

Fifth.—Of Steam and Marine Engineering.

Sixth.—Of Naval History and Strategy, International Law—especially of belligerents and neutrals—and the Law of the Sea, Consular Duties, &c.

Seventh.—Of Modern Languages.

Into each of these schools let the cadets be drafted, the choice to be determined by their own predilection or comparative fitness, at the close of the second year, and after completing such number of these courses, not less than four, as may be prescribed, let them have the privilege of an examination.

Each of these departments or schools might be opened to a certain number of candidates, on competitive examination, from each State—no matter where they may have received their education—and permission might be given to officers of any rank to review and extend their knowledge of either of these departments with the more advanced text-books and means of instruction. By this arrangement the service will secure the highest development of any special aptitude, preparation, or experience—and will more frequently get "the right man in the right place."

The importance of these great departments of the naval service, and of special preparation for them, is fully appreciated by the Academic Board, but any attempt to give this preparation to all the members of the present classes, with such unequal and deficient preparatory knowledge and with such diverse aptitudes for particular branches, would be futile. The attempt to teach as much as is now done, under the circumstances, only produces confused and unsatisfactory results with a large portion of the class. The remedy for this state of things seems to the Visitors to be in:—

1. More thorough preparation, higher average ability, and greater maturity of mind on the part of the cadets.

2. A thorough scientific course up to a certain point, for all the cadets, to occupy two years.

3. The requiring of linguistic training (in one or more modern languages,) only of those who show some aptitude or previous preparation for the same.

4. An option of two or three of the above courses, and a thorough proficiency in those selected before being permitted to pass as midshipman.

5. And finally continuation of study as well as of practice after graduation in the directions for which there is a demonstrated fitness and ability.

V. The Visitors deem it desirable to concentrate in and around the Naval Academy the largest amount and the highest quality of teaching ability, naval experience, and the apparatus and opportunities of practice of every kind connected with the naval service. But they would also commend to the consideration of the Department the encouragement of Naval Institutes, or temporary courses of instruction, at suitable seasons of the year, in some of the great departments of naval education specified in the foregoing classification—for the benefit of officers on furlough, or connected with the National Dockyards and Depositories, especially those in the neighborhood of large collegiate institutions, on the request of a certain number of such officers. Private naval architects and shipmasters might also be invited to attend these Institutes. Something of this kind should be provided, especially if continued study and examination is required by law and regulation at every stage of promotion in the naval service.

VI. The absence of elementary naval schools and of any regular instruction in navigation, the want of nationality and the low condition of the seaman-class generally, prevents any considerable demonstration or recognition of that nautical taste and aptitude for sea-life in the great mass of the population, which ought to be the basis of all special nautical training. To remedy this state of things, to develope and cultivate, where it exists, a desire for a maritime career, to provide at once a supply of intelligent, hardy, and well-trained seamen, mates, and masters, for the national as

well as for the commercial marine, in time
emergencies of a sudden or a great war, th
inauguration, under the auspices of the N
tem of navigation schools and naval instruc
connection with our present system of nava
surate with the demands of the service,
As the basis of this system, they recomm
of pecuniary aid to encourage the establi
gation schools in all the large seaports o
thorough national inspection in order to
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ization, management, and instruction of
ther than to present the outline of a syste

1. The schools which they contemplate,
schools—although they will be aided an
Department. Their original establishment,
ment, and immediate management will
of Trade or Commerce representing the
interests of the communities in which th
such Board, the State or municipal auth
extend pecuniary aid for the original outfi

2. The objects aimed at in the internal
and classes, will be thorough instruction
and kindred branches through:—*First*—
(seamen, mates, or masters,) who can not a
of absence from port or engagements by
tion will necessarily be elementary and
junior department or division, in which
drawing, commercial geography, and stati
as in navigation, the use of instruments, c
keeping a log-book, journal, &c; *Third*—
which a thorough course of mathematics,
omy, steam and steam navigation, &c., wil
for acquiring one or more of the langu
which we have large commercial dealings.

3. The extension of any government ai
condition that suitable buildings and mat
nished and kept in repair and working ord
committee of the same, charged with the
of the school; and such aid shall be subje
drawal for the succeeding year on the re
partment inspectors. For the first year t
be the actual payment, from other sources

the annual expense of the school, subject to the disposal of the local Board. For the second and subsequent years, the sum paid by the government shall be appropriated in portions; *First*—a specific sum to the principal teacher and assistants according to the grade of certificated qualification each may hold; *Second*—a specific sum to the managers of each school for the annual expense of the same, according the average daily or evening attendance of the whole number enrolled in each class or division for a specified period of time in each year; *Third*—a specific sum to the managers of each school according to the number of pupils who shall complete certain specified courses of study to the satisfaction of the inspectors upon examination by them; *Fourth*—a specified sum in prizes, in the form of chronometers, sextants, text-books in navigation, &c., to be competed for by all the pupils of each division of a school; *Fifth*—a specified sum in aid of such professional experience as can be secured for the younger members of the school, as is now given to naval apprentices. All payments by the government should be so made as to secure and reward the services of able and faithful teachers, the regular, punctual, and prolonged attendance of pupils to the completion of each course which they enter, and the liberal coöperation of the local municipal authorities and the commercial and shipping portions of the community in which the school is located. Without such coöperation the whole plan will fail. The school need not be free—but let the instruction be good, practical, and cheap, and its possessor be sure of a lucrative employment, and then there will be a demand for it.

And why should not the national government enter upon this or a better devised system of training its own seamen, and advancing its naval and commercial interests? All maritime nations, either directly and exclusively by the central government, or through local boards of trade and commerce, have aimed to protect the lives and property of citizens engaged in commerce and navigation, by providing not only for the erection of light houses, buoys, and other material safeguards, but also by an adequate supply of competent pilots and mariners, duly trained and commissioned. Our own government has recognized its duty in all these respects, and in the recent enormous expansion and peculiar risks of the steam-marine, has established a system of inspection which is intended to reach every engine used for the propulsion of every vessel of any class in all waters subject to national law. Surely the same policy which permits and justifies this interference of the national arm and the application of the national resources to build light-houses, erect buoys, register the names, tonnage, and ownership of vessels, which commissions pilots, inspects steam-boilers, surveys harbors, makes observations of the stars, the currents of the ocean and the prevalent directions of the winds in different seasons and latitudes; constructs and circulates maps and charts, and does all these things for the protection of commerce and for the use of the navy, will, in behalf of the same great interests, when satisfied that they are jeopardized by present neglect, see and be assured that the masters, mates, and seamen, who have all the precious lives and enormous properties embarked in commerce in their keeping, are properly trained in the science and art of navigation.

The liberal educational policy of the national government which has set apart over one hundred millions of acres of the national domain for educational purposes, which if the right of inspection into its application had been asserted and exercised, would have amounted ere this time to a permanent fund of over five hundred millions of dollars—and which has more recently appropriated over six hundred thousand acres of public land for the establishment of agricultural and scientific schools;—the similar policy of the State governments, that holds all property subject to taxation for the support of schools, and that authorizes the most munificent appropriations for free public schools in all of the large cities, which are also the great seaports of the country—all justify the belief that a system of education for this large class of the community, once fairly entered upon by the national government, will be cheerfully and liberally responded to and sustained.

In England the same necessity which exists in this country—the reluctance of young people in good circumstances, to enter the maritime service—the low state of the professional as well as general education of her seaman-class—the enormous amount of property and the large number of lives directly interested in commerce and navigation—the reliance for properly manning the national vessels in the sudden emergency of war, on the commercial marine—the representative character which mariners bear, of the religion, manners, and civilization generally of the country, to all nations which they visit—the desire for the elevation of this large class of the population in intelligence, morality, and physical well-being, for its own sake as well as for the happiness, safety, and glory of the whole country—has prompted the government to organize a system of nautical education, not only for officers, gunners, architects, shipwrights, engineers, seamen, and boys employed directly in the national service, but for the masters, mates, sailors, and boys in her large commercial marine. Prior to 1853, the whole reliance of that country for the professional education of masters and mates was their registration after an examination in the mere mechanical knowledge of navigation and seamanship. To obtain this knowledge, reliance was placed on the economic law of supply and demand, and in this case as in others of an intellectual and moral nature, the least demand was made by those in the greatest want. Only here and there, in the great seaport towns, individuals poorly qualified in most instances, opened schools and classes of navigation, in which instruction of the most elementary and mechanical character was given without system, to a very small number, and without supervision or responsibility. In 1853, after the great International Exhibition had demonstrated the superiority of France and other continental nations, in the scientific as well as artistic training of their industrial classes, the English Government constituted a Department of Art and Science to administer a large appropriation (amounting annually to nearly a half-million of dollars) so as to extend encouragement to local institutions of practical science scattered in all the principal centers of population, and acting in every department of industry, all subject to the visits of government inspectors. To this Department of Science and Art was assigned the extension of pecuniary encouragement to, and the inspection of a class of schools which had been instituted by the Mercantile Marine Department of the (governmental) Board of Trade, in connection with local boards of commerce and trade, for the benefit of the navigation interests of the country. These schools in 1863 had increased to eighteen—each in an important seaport—each under the management of a local committee—each having a fair attendance of boys, seamen, mates, and masters, who all paid small fees. The system is still in its infancy, but continues to enjoy the confidence of the government and of the large commercial houses.

Nor is this system of governmental aid and inspection of marine and navigation schools, confined to England. In all the continental states in which the commerce is large enough to require the aid of government in any form for its protection, as well as for the indirect advantage of the navy, this class of schools exists—and in some the national policy in this respect is most comprehensive and thorough. In France, the government in its gigantic efforts within the last twenty-five years to establish a navy which in the number, design, construction, and armament of its vessels, in the scientific and professional knowledge of the officers, and the practical intelligence of her seaman, should be equal to that of any other nation—has included the whole commercial marine in its operations. Encouragement is given to private shipyards; architects, and founderies; and the system of maritime "inscription" or enrollment is so thorough that there is not a master nor an engineer in the commercial service who has not served at least two years in the national dockyards, founderies, or ships, and enjoyed opportunities of professional study, as well as practice, of the most scientific character.

VII. To give unity, stability, thoroughness, and general efficiency to the inspection and operations of the large system of naval education contemplated in the foregoing suggestions, the Visitors recommend the appointment of a Council or Board of Naval Education, in the constitution of which the great features of such a system should be represented, viz.:—(1.) Experience and success in naval command. (2.) Experience in large commercial and maritime affairs. (3.) Success in naval construction. (4.) Success in the instruction and discipline of educational institutions. (5.) A new infusion every year of the popular element, by the appointment from year to year of one or more public-spirited citizens from different sections of the country to attend the local examinations of applicants for admission, and the annual examinations of the several institutions.

To this Board should be assigned the duty of (1.) Frequent personal inspection and examination at other than stated periods. (2.) The thorough examination by themselves, and in connection with the professors, of the several classes in their daily recitations. (3.) The examination by themselves, or by competent experts, of all candidates for admission, of which as far as practicable, the written answers of the candidates should be preserved, and a written report in detail should be filed away for reference.

The language used in the law under which the present Board of Visitors are appointed—"for the purpose of *witnessing* the examination of the several classes"—if taken literally, would certainly justify the practice adopted by this, and as far as they can learn, by previous Boards. At all events, the constitution of this and previous Boards, composed as it is of members a majority of whom have had no experience in school examinations—who have had no acquaintance with this institution before their present appointment—and who are together for but a short period of time, is very inadequate for any purpose of thorough personal examination. They must be satisfied in the main to receive statements on trust, and to receive and communicate only general impressions. All the duties devolving upon the Board of Visitors as at present organized, could be far more efficiently and successfully performed in connection with the other duties of the Council of Naval Education, here suggested.

VIII. With a programme of studies so extensive as that now laid down or as herein proposed, in which each study is, or should be arranged with reference to what has gone before, as well as to what is to follow, the professor of each department and the teacher of each branch and section, should be kept closely to his portion, each cadet should master thoroughly every step in the succession, no professor should encroach upon the time of another, no teacher should be allowed to pass his pupils indifferently prepared into the succeeding section or branch. Even if no change be made in the present programme this course is essential to the success of the school, and to secure this an Inspector of Studies should be appointed, who should report frequently to the Academic Board all and every infraction of the programme, so that it may be ascertained whether the cause of failure be in the programme, or the class, or the teacher; and the remedy at once applied. Both the special and general duties of the Commandant preclude the constant and minute inspection referred to, and to the professor of no one department can these duties be properly assigned. While there is a superior executive officer who has in charge the external administration of the affairs of the Academy, there is no corresponding officer, as in the opinion of the Visitors there should be, to preside over the vital matters of instruction and training.

IX. The appointment of professors and assistants is a subject from its importance at all times, and from its immediate bearing upon the welfare of the school, deserving of mature consideration. The efficiency and thoroughness of instruction, the spirit of diligent study and the enthusiastic love of it among the midshipmen, depend to a great degree, upon the fitness of the instructor for his post and the method and manner of teaching which he employs. Though there may be some reason for limiting their appointment to the graduates of the Academy, yet the present course of instruction has by no means in view the training of future teachers, nor has it yet reached its full development. The success and advancement of the institution would seem to require the employment of the best educational talent, and none other, to be obtained wherever it can be found. Whenever any vacancy is to be filled, or new appointments to be made, the Visitors recommend that due notice of the same be given, and that the credentials of all applicants be referred to a competent board, and the applicants themselves whose credentials are satisfactory, be subjected to an open, competitive examination.

X. In conclusion, the Visitors recommend that greater publicity be given to all the documents which set forth the object and operations of the Naval Academy, the mode and conditions of nominating midshipmen, the name of the person responsible for a nomination, the requisitions and results of each entrance as well as of all annual examinations, with specimens of the questions asked and answers given, so far as the same were written or printed. They would respectfully urge that the Official Register of the Academy, with the above and other information deemed necessary by the Department, be sent not only to every member of Congress, but to the libraries of all principal High Schools, public and private, and all institutions where candidates are prepared, that both teachers and pupils may know what the Department requires as preliminary to the special professional training provided in this Academy for any branch of the naval service of the country, and especially how deplorably deficient a large proportion of the candidates are found to be, on only a moderately strict but impartial examination. To this Register might be appended the official report of the Bureau charged with its supervision, or of any Board of Visitors, or Special Examiners, appointed by the Department.

With the best permanent accommodations and equipment of the Academy that can be made at Annapolis or elsewhere—with schools or courses of scientific and practical instruction for every branch of the service, and for every stage of promotion—with a teaching staff so numerous and so diversified as to secure the advantage of special attainment and qualifications to each branch of study—with entire control of the pupil's time—with hospital accommodations and medical services for the sick—with chaplains for religious observances and the moral culture of all—with regular alternations of physical exercise and intellectual labor, and the stimulus of an honorable distinction before and after graduation—the Visitors think it not unreasonable to expect from an institution so provided for, the highest results, especially as the government has it in its power to select for admission, without regard to the social or political status of parents, from among the entire youth of the country, those who are best fitted by their physical and mental endowment and preliminary education, as well as by their aptitude for special studies and predilection for the naval service, for which those studies are a preparation.

All which is respectfully submitted.

JOHN MARSTON, *Commodore U. S. Navy, President.*
JAMES A. HAMILTON, *New York.* G. D. A. PARKS, *Illinois.*
JOHN RODGERS, *Commodore U. S. Navy.* C. W. PICKERING, *Capt. U. S. Navy.*
CHARLES D. ROBINSON, *Wisconsin.* JOHN W. HARRIS, *Missouri.*
HENRY BARNARD, *Connecticut.*

The aggregate expense of the Military Academy at West Point, and the Naval Academy at Annapolis, to the country, is not represented by the specific sums which appear in the annual appropriation for the military and naval service, but is increased by the large sums paid to officers and men who are detailed to these posts for police, instructional, and other purposes of these institutions. The cost to the government of each cadet from his admission to his graduation in either Academy, exceeds $10,000.

NAVAL CONSTRUCTION AND ENGINEERING.

Under authority of an Act of Congress (July 4, 1864), the Secretary of the Navy, in 1865, made provision at Annapolis for a course course of instruction for a class of Assistant-Engineers, composed of persons admitted on competitive examination, many of whom had secured a preliminary scientific training, and all of whom gave evidence of aptitude for such occupation and of having had experience in the fabrication of steam machinery. There was every indication of a special school for this department of the naval service, when the enterprise was suspended; but to be revived under the following Regulations, issued by Secretary Robeson, April 4, 1871:

REGULATIONS FOR THE APPOINTMENT OF CADET ENGINEERS.

I. In pursuance of the third and fourth sections of an act passed at the first session of the 38th Congress, approved July 4, 1864, "*To authorize the Secretary of the Navy to provide for the education of Naval Constructors and Engineers, and for other purposes*," and of the second section of an act passed at the first session of the 39th Congress, approved March 2, 1867, entitled, "*An Act to amend certain acts in relation to the Navy*," applications will be received by the Navy Department for the appointment of Cadet Engineers.

II. The application is to be addressed to the Secretary of the Navy, and can be made by the candidate, or by any person for him, and his name will be placed on the register. The registry of a name gives no assurance of an appointment, and no preference will be given in the selection to priority of application.

III. The number of Cadet Engineers is limited by law to fifty. The candidate must be not less than eighteen nor more than twenty-two years of age; he will be required to certify *on honor* to his precise age, to the Academic Board, previous to his examination, and no one will be examined who is over or under the prescribed age. His application must be accompanied by satisfactory evidence of moral character and health, with information regarding date of birth and educational advantages hitherto enjoyed. Candidates who receive permission will present themselves to the Superintendent of the Naval Academy between the 15th and 25th of September for examination as to their qualifications.

IV. The course of study will comprise two academic years. All Cadets who graduate will be warranted as Assistant Engineers in the Navy. The pay of a Cadet Engineer is the same as that of a Cadet Midshipman.

V. The academic examination previous to appointment will be on the following subjects, namely: *Arithmetic:* the candidate will be examined in numeration and the addition, subtraction, multiplication, and division of whole numbers, and of vulgar and decimal fractions; in reduction; in proportion or rule of three, direct and inverse; extraction of square and cube roots. In *Algebra*, (Bourdon's,) through equations of the first degree. In *Geometry*, (Davies' Legendre,) through the plane figures. *Rudimentary Natural Philosophy*. *Reading:* he must read clearly and intelligibly from any English narrative work, as, for example, Bancroft's History of the United States. In *Writing* and *Spelling:* he must write from dictation, in a legible hand, and spell with correctness, both orally and in writing. In English *Grammar* and English *Composition* he will be examined as to the parts of speech, the rules connected therewith, and the elementary construction of sentences, and will be required to write such original paragraphs as will show that he has a proper knowledge of the subject. The candidate will also be required to exhibit a fair degree of proficiency in pencil-sketching, and to produce satisfactory evidence of mechanical aptitude. Candidates who possess greatest skill and experience in the practical knowledge of machinery, other qualifications being equal, shall have precedence for admission.

VI. Any of the following conditions will be sufficient to reject a candidate.

Feeble constitution, permanently impaired general health, decided cachexia, all chronic diseases or injuries that permanently impair efficiency, viz:

1. Infectious disorders.
2. Weak or disordered intellect.
3. Unnatural curvature of spine.
4. Epilepsy, or other convulsion, within five years.
5. Chronic impaired vision, or chronic disease of the organs of vision.
6. Great permanent hardness of hearing, or chronic disease of the ears.
7. Loss or decay of teeth to such an extent as to interfere with digestion and impair health.
8. Impediment of speech to such an extent as to impair efficiency in the performance of duty.
9. Decided indications of liability to pulmonary disease.
10. Permanent inefficiency of either of the extremities.
11. Hernia.
12. Incurable sarcocele, hydrocele, fistula, stricture, or hæmorrhoids.
13. Large varicose veins of lower limbs. Chronic ulcers.
14. Attention will also be paid to the stature of the candidate, and no one *manifestly* undersized for his age will be received into the Academy. In case of doubt about the physical condition of the candidate any marked deviation from the usual standard of height will add materially to the consideration for rejection.
15. The Board will exercise a proper discretion in the application of the above conditions to each case, rejecting no candidate who is likely to be efficient in the service, and admitting no one who is likely to prove physically inefficient.

VII. If both these examinations result favorably, the candidate will receive an appointment as a Cadet Engineer, become an inmate of the Academy, and will be allowed his actual and necessary traveling expenses from his residence to the Naval Academy, and be required to sign articles by which he will bind himself to serve in the United States Navy six years, (including his term of probation at the Naval Academy,) unless sooner discharged. If, on the contrary, he shall not pass both of these examinations, he will receive neither an appointment nor his traveling expenses, nor can he have the privilege of another examination for admission *to the same class* unless recommended by the Board.

VIII. When candidates shall have passed the required examinations, and been admitted as members of the Academy, they must immediately furnish themselves with the following articles, viz:

One navy-blue uniform suit,
One fatigue suit,
One navy-blue uniform cap,
One uniform overcoat,
Ten pairs of white pants,
Four white vests,
Six white shirts,
Six pairs of socks,
Four pairs of drawers,
Six pocket handkerchiefs,
One black silk handk'f or stock,
One mattress,
One pillow,
One pair of blankets,
One bed cover or spread,
Two pairs of sheets,
Four pillow cases,
Six towels,
Two pairs of shoes or boots,
One hair-brush,
One tooth-brush,
One clothes-brush,
One coarse comb for the hair,
One fine comb for the hair,
One tumbler or mug, and
One thread and needle case.

Room-mates will jointly procure, for their common use, one looking-glass, one wash-basin, one water-pail, one slop-bucket, and one broom. These articles may be obtained from the store-keeper of good quality and at fair prices.

IX. Each Cadet Engineer must, on admission, deposit with the paymaster the sum of seventy-five dollars, for which he will be credited on the books of that officer, to be expended by direction of the Superintendent for the purchase of text-books and other authorized articles besides those above enumerated.

X. While at the Academy the Cadets will be examined, from time to time, according to the regulations prescribed by the Navy Department; and if found deficient at any examination, or dismissed for misconduct, they cannot, by law, be continued in the Academy or Naval service, except upon recommendation of the Academic Board.

XI. A Cadet Engineer who voluntarily resigns his appointment will be required to refund the amount paid him for traveling expenses.

INSTRUCTION, TRAINING AND PROMOTION OF SEAMEN.

INTRODUCTION.

UNDER the constitutional powers "to regulate commerce with foreign nations and among the several States," and "to provide and maintain a navy," Congress, it is believed, can do more than is now done to provide both the military and commercial marine with intelligent, hardy and skillful sailors, as well as mates and captains, and to elevate the position of the whole seamen class.

The frightful accidents from explosions caused by badly constructed, or worn out steam-boilers, led to a system of national inspection which has done something to diminish the loss of life and property from this source, in vessels engaged in commerce on the ocean or our inland waters—but a system of instruction, examination, and promotion, under national authority, with national aid and the cöoperation of the mercantile community, of all persons intrusted with the command and navigation of all vessels, registered as national shipping, would put an end to all that class of disasters to life and property which is now attributable *to ignorance and want of experience*—and which is regarded by underwriters as much the largest portion of all marine disasters.

The necessity of doing something led to the establishment of the naval apprentice system, under the Act of March 2, 1837.

The original trial was not inaugurated under favorable conditions, and was prematurely abandoned, under the economical action of Congress which compelled the department to elect between men and boys for its arduous service. In 1864 the system was revived by Secretary Welles, a vessel was placed under the command of a competent officer, and a promising class of boys, after a preliminary examination were enlisted, and the work of their instruction was begun by training them in all the details of a sailor's duty at sea. The Secretary in his Report for 1866, expressed himself hopeful of the results—but urged Congress to further legislation, to make the system attractive, by holding out to the most deserving members of the class, appointments to the Naval Academy, and a retiring pension after twenty years' service. His suggestions were not heeded, and under the limitations of the Act of 1866 the trial failed.

Commodore Jenkins, Chief of the Bureau of Navigation, having cognizance of Naval Apprentices, in his Report for 1866, remarks:

> A judicious naval apprentice system will secure to the navy every year, after the first enlisted boys are thoroughly trained and educated, a sufficient number of well-disciplined and better instructed seamen to give tone and character to the crews of our vessels of war than heretofore, and if the enlistments were unlimited it would require only a few years to provide all the seamen necessary for a formidable naval peace establishment.
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> But it is not the navy alone that is or ought to be greatly interested in the success of the naval apprentice system. Every ship-owner and shipper in the country will be directly or indirectly benefited as well as the navy. Many of the apprentices will, at the expiration of their apprenticeship, seek service on board of merchant vessels, where the advantages of their previous training and education will be felt.
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> If there were training-ships in every port of the United States for apprentices to the sea service, and the apprentices, after being taught the rudiments of an English education and all the seamanship that could be taught on board of a vessel in port, were sent on long sea voyages, the seamen of the country would soon become more elevated in character than they are at present, and ship-owners would realize the importance of cherishing and protecting a valuable class of our countrymen who are now left to the tender mercies of hard-hearted landlords, crimps, and runners.
>
> It is a great mistake to suppose that steam vessels can be managed well by landsmen at sea. The terrible shipwrecks, loss of numbers of individuals, and of millions of dollars' worth of property annually on the ocean, is in the main attributable to bad management, ignorance, and want of experience of those in charge of the vessels. It is as necessary that sea steamers should be officered and manned by expert seamen as it was in former times for clipper and other sailing vessels. A good knowledge of seamanship is only to be acquired by a long apprenticeship; nor does the ability to navigate a vessel from one port to another make a man a seaman. There is no vocation, profession, or calling which requires a more varied knowledge and a greater experience than that of an expert seaman. It is not sufficient that he should know how to knot and splice a rope, to reef and furl a sail, to take his trick at the helm, or to give correct soundings in heaving the lead. He must be a good judge of the appearances of the weather, know how to lay his vessel to and under what canvas for safety, on what tack to put his vessel to avoid the strength of the approaching gale or hurricane, when to run and when to lie to, and he must be fertile in resources to save his vessel in case of danger or disaster at sea. The expert seaman is a man full of resources, and ever ready to turn his knowledge and experience to good account; but such is not the estimate of him by those who only know him as an outcast of society, without friends and without influence.
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> As education and careful training elevate those who are engaged in the different pursuits on shore, the same means, if judiciously employed, will elevate and make useful and respectable in their sphere that much neglected and greatly oppressed class of our fellow-citizens—the American sailor.

Navigation Schools for the Mercantile Marine.

Whatever may be the success of still another trial of the apprentice system to secure a supply of trained seamen for the Navy, the experience of all other countries is decidedly in favor of a liberal system of Navigation Schools, as well as an efficient system of registration, examination, and certificates of competency and of service, administered under national inspection and with pecuniary aid, and under the local management of merchants, ship-owners, and underwriters, for the commercial marine.

GENERAL REVIEW OF MILITARY EDUCATION.

I. NAVAL SCHOOLS AND EDUCATION.

We can not better introduce the conclusions to which this study of the subject has brought us, than by giving a few extracts from the many communications, which the recent agitation of naval education in England has elicited.

Proposed Improvements in Naval Education in England.

In 1869, the alternative was offered, on their own petition, to the 2,710 disabled seamen, who resided in the truly magnificent Hospital at Greenwich, on the Thames, which the national gratitude had set apart for their accommodation, when no longer able from wounds, age, or other infirmities to serve under "the meteor flag" of England—to continue there at the expense of the government, or draw their pensions and spend it in their own way, among their friends in their old homes, or wherever they fancied; only 31 elected to remain—and these were too feeble to leave, or had outlived their friends. The old Hospital infirmary, a large detached building, was granted by the Admiralty to the Seamen's Hospital Society for the benefit of the mercantile marine; but the bulk of that immense pile—which is covered in by seven acres of roof, and whose domes and colonnades were designed by Sir Christopher Wren, and erected at a cost, from first to last, of not less than a million sterling—full of historic associations as the birthplace of Queen Elizabeth, and the residence of two dynasties of English kings, and the greater Lord Protector Oliver Cromwell, and for two centuries the home of the British Navy—for nearly two years has stood vacant. The Times, in an editorial of September 13, 1871, renews a suggestion made at the time the system of out pensions was under discussion, to continue its use for the Navy.

It is almost two years since we hazarded the suggestion that it should be converted into a Naval University. We used the term "University" in the sense of a collective institution, embracing several separate Colleges adapted to a similar purpose. We pointed out how inadequate in extent and in range of education is the present Royal Naval College at Portsmouth, the only institution we possess for supplying to Naval Officers what is termed a "higher education." We also reminded our readers that the education of our Naval Cadets between the ages of 12 and 14 is now carried on in a School-ship, which, from the nature of things, must have many disadvantages in comparison with a building of ample space on the brink of a great river and on the border of a

Royal Park. We showed that there was already a great Charity-School in the rear of the Hospital, and supported by its funds, for the gratuitous education of 800 children of poor sailors; and we reckoned that the Hospital would still supply ample accommodation for a scheme, suggested to us on high authority, for furnishing at cost price to the children of seamen of all grades in the Navy and Commercial Marine, an education in English, French, the elements of science, and the ordinary rudiments of instruction.

In the year 1870 the Admiralty appointed a committee on "the Higher Education of Naval Officers," and directed them to consider whether it was desirable to limit the place of study to the College at Portsmouth, or whether the vacant buildings at Greenwich could be utilized for the purposes of education. The reported evidence of the Committee revealed a lamentable want of scientific knowledge in the naval profession. The witnesses were agreed in stating that few half-pay Officers had knowledge enough to study with advantage after the age of 30, and that few could, with advantage to the service and themselves, be spared to study before the age of 30. It was stated by the Mathematical Master that Commanders and Captains come to the College very badly prepared, and that "some come who are unable to work a decimal fraction." They come, as the College is now organized, exclusively for scientific study, in which Mathematics are a necessity, and yet are destitute of the most elementary preparation. Of course there are a few brilliant exceptions, but the scientific attainments of the profession as a body appear to be deplorably low.

In preparing a scheme for the improvement of what is so modestly termed "the higher education" of Naval Officers, the Committee proposed to add to the voluntary subjects of study a considerable number of practical pursuits. They proposed, under the advice of the late Chief Constructor of the Navy, to add both a short and a long course in Naval Architecture, in which there is at present absolutely no instruction given to Naval Officers. Such an education was supplied between the years 1806 and 1821, but since the latter year it has been altogether ignored and discouraged. It would require considerable space for the exhibition of models, and no sufficient room exists for it in the present College in Portsmouth Dockyard. The Committee proposed to furnish instruction, as now, in Steam, Mathematics, Nautical Astronomy, and Field Fortification, but to add facilities for the study of Languages, Chemistry, including Metallurgy, Geology, Mineralogy, and Naval Tactics. The want of a knowledge of languages in the British Navy was signally illustrated on a somewhat recent occasion, when the French iron-clad fleet visited Spithead, and upon our Admiral signalling for all officers who could speak French to come on board the Flagship, only one officer in the Channel Fleet was able to respond to the summons. The want of a scientific knowledge of the principles of naval architecture has prevented of late many skilled seamen of the Royal Navy from contributing useful and practicable suggestions to the discussions on our iron-clad ship-building. The Committee seem to have thought that it would not be practicable to make a year's study in the Naval College in peace time compulsory for every sub-lieutenant, though distinguished officers, like Admiral Sir Alexander Milne, gave evidence in favor of it. But, apart from this abundant source for supplying students, it was anticipated that an extension of the education would attract a large increase of scholars: and on general grounds, quite distinct from the accommodation, one-half of the Committee, including the Director of Naval Education, were strongly in favor of establishing the College at Greenwich. Fortified by this concurrence of authority, we recommend again to the consideration of the Government the scheme of a Naval University as the best mode of repeopling that ancient and now vacant Hospital.

This "leader" of the Times was followed in the issue for Sept. 20, by a communication from the eminent ship-builder E. J. Reed, who was for several years at the head of the Department of Naval Construction—with reasons for immediately widening and raising the education of naval officers of all classes.

The absence of everything like a comprehensive organization for imparting to them the knowledge necessary in these days is truly deplorable, and is made the more so by the very fact that our officers are themselves well aware of the extreme defectiveness of their training in many branches of knowledge which would be most valuable to them, and exhibit the strongest desire to supplement that training by every available means. I have had many occasions of observing this during the last few years; not the least striking of them being the publication of my book on *Shipbuilding in Iron and Steel*, which, although a purely technical and professional book, was eagerly procured and studied by a very large number of naval officers, who, as you justly state, are now left absolutely without any official instruction in naval architecture. When in Russia this year I found elaborate means and appliances for instructing young officers in all the great features of practical shipbuilding, as well as in the general principles of naval design, and I had the opportunity of examining a large model of an iron-clad ship which was being constructed by these young naval officers; while the shipbuilding and engineering officers of the Russian service have one entire side of the vast building which accommodates the Admiralty branches, wholly devoted to their instruction. I have not yet seen the naval training schools of Germany. but I have had several opportunities of conferring on shipbuilding questions with the naval officers of that country, and I can state with perfect confidence that they possess a most intimate acquaintance with even the latest methods of naval design and construction, and obviously have had a careful training in the principles of naval architecture and the details of shipbuilding. How much this training contributes to the efficiency of naval commanders and other officers I need not say.

Mr. Reed dwells on the total absence of even an attempt to instruct naval officers of all ranks in the department of construction.

Even our warrant officers, the "carpenters" of the Navy, whose duty it is to keep our Navy in repair at sea, and to take instant measures for saving our ships from the effects of injuries sustained by collisions, groundings, or during action—even these officers are subjected to no special and organized training whatever, and are often put on board ship, in responsible charge of the repairing staff, without any knowledge whatever of the construction of their vessel.

I knew so well that the whole class of naval "carpenters" have for years been anxious to obtain a better training for their very responsible duty, that I made a vigorous effort to be allowed to organize a system by which every carpenter of the service should be carefully instructed in iron shipbuilding, and as carefully selected for particular ships on account of his fitness for the duty; but some tradition about warrant officers being "executive officers," and therefore not under the Chief Constructor of the Navy, and also, I fear, some jealousy of the patronage of such appointments passing into new hands, effectually barred my progress, and imposed conditions under which it was not possible to give effect to my wishes.

I do not think I shall go beyond the truth if I say that other warrant officers are as deficient of suitable training as carpenters. I have certainly known of more than one instance in which the machinery by which our great modern guns are worked at sea has been so imperfectly understood that the "breaks" which are intended to control them have been "greased;" and no doubt a war would develope sad consequences of the enforced ignorance of our gunners.

But let it not be supposed that I advocate the instruction of warrant officers alone in the principles and practice of shipbuilding; it is in my judgment pressingly desirable that the whole class of executive officers should be afforded a certain amount of training in these subjects, and a far ampler training than they now receive in many other subjects also. The Navy suffers very much, even in peace times. from the want of a more liberal training on the part of its officers, as they themselves well know; and I am thoroughly persuaded that in a time of war we shall have to make great sacrifices on account of our neglect in this respect. Many unwise things are done, and many unwise reports are written, because of the want of fuller scientific and technical information on the part of naval officers; and I do not hesitate to say that during my tenure of the Chief Constructorship serious evils arose in my own department from the outside pressure of the uninformed.

Mr. Reed would locate the Naval University at Greenwich.

Such a University must almost of a necessity be metropolitan. All the provincial Government Schools of Naval Architecture in this country have failed, and always must fail, because the metropolis alone can supply the necessary professors for class education chiefly of a scientific character; and the same is even more true of the present case. All the civil members of the late Admiralty Committee on the higher education of naval officers concurred in this view, none more strongly, I believe, than the present Director of Admiralty Education, Dr. Joseph Woolley, who is undoubtedly at once the most experienced and most enlightened authority alive as regards all questions of naval training. And there is this very strong further reason for making this University metropolitan—viz., that one of the most fruitful and valuable results to be anticipated from a more liberal and enlarged education of our naval officers is the release of the service from those [illegible] and [illegible] Old World prejudices which cramp the action and spirit of the service in these modern days, when other nations are bringing their most free and cultivated minds to bear upon naval warfare; and to found a University in a port where the present traditions and habits of thought of the service have the greatest force, would be to place a fatal stumbling block at the very threshold of the work; and if the metropolis is to be the home of the University there can not be a doubt about the superior eligibility of Greenwich. There the magnificent college already stands, with its empty halls, inviting the Government to devote them to some great national and naval object. It is within easy reach of London, professors and teachers; it is in the neighborhood of great shipbuilding and marine engine-making establishments, and also of Chatham Dockyard. It is on the banks of our noblest river, and on the verge of the open country, so that every form of healthful recreation would be available for the students. It also affords ample internal space for all those laboratories, model rooms, lecture rooms, and other apartments, which could only be secured on a sufficient scale at a seaport by a large outlay of money. And, above all, it affords the readiest, as well as the best, means of entering upon a much too long-neglected undertaking.

In the same issue (Sept. 20), the Times had a leader on the subject, from which we take a few paragraphs.

It is certainly discouraging for a nation which has hitherto held, and which means to keep, the first place in the world as a naval Power to find that in systematic training Russia and Germany are dangerously surpassing us. No doubt in the raw material of a navy we can compete fearlessly with any country on the face of the earth; our sailors can not be matched for enterprise, resolution, and discipline, nor can our captains, in spite of some late disasters, be out-sailed or out-manœuvred by any who sail under foreign flags. But we must not forget that war on the seas, like war on land, is year by year becoming more and more a scientific pursuit. Our magnificent iron-clad fleet, in which Mr. Reed feels justly a parental interest, is too precious a possession to be intrusted to men who do not know how to use so two-edged an instrument. But how should our naval officers know how to manage an iron-clad ship? They are taught nothing about the construction of these triumphs of modern science; they do not, as a rule, possess even the elementary knowledge which would enable them to commence the study of the subject.

Whether the unequaled advantages offered by Greenwich Hospital be turned to account or some more expensive method be adopted by a Government which pins its credit on economy, the necessity of providing for the education of naval officers can no longer be ignored. Not to speak of the absolute absurdity of sending iron-clads to sea in charge of officers who know no more of the construction of an iron-clad than they know of the latest improvements in cotton-spinning machinery, it is obvious that a system under which men whose business is to navigate costly vessels of war, are sent to their work without knowing even the elements of mathematics, must sooner or later result in a disastrous collapse. It may be a question whether such has not been the case already,—whether the recent mischances in the conduct at sea of some of our finest vessels may not be traceable to the imperfect education of the officers.

> When other nations are giving their sailors scientific teaching, and when we are expending gigantic sums on the construction of a Navy which must be handled in accordance with scientific principles, it appears absurd, or worse, to allow the commanders and the officers of our iron-clads to go to sea without the slightest guarantee for their knowledge of the peculiar conditions under which one of our modern monster ships is to be managed. If an iron-clad happens, as we may presume, considering what has lately happened, is not impossible, to strike upon a rock or otherwise seriously to damage herself at a distance from home dockyards, the chances are that no one on board, from the captain down to the carpenter, will know how to repair the damage.

To the urgent demand for more scientific knowledge of naval construction, Admiral Henry J. Rouse interposes a plea for more seamanship, discipline, and education afloat. In the Times for Sept. 28, the bluff Admiral says, rather bluntly:

> I was alive to the want of seamanship and to the neglect of a naval education from the moment a midshipman left his school and was appointed to a steamer: but I always flattered myself there was one redeeming point—namely—gunnery—in which the officers of the present day had a wonderful preëminence over the old school. How is the proposed college to ameliorate this state of things? Will it make the young officers engineers when on board ship? They are not allowed to interfere with the engineer, who is, in fact, the commanding officer. Will warrant officers, carpenters, and gunners, be educated there? And in answer to Mr. Reed relying upon the carpenter in the event of a ship grounding (not an uncommon occurrence), we look to the captain to lay out his anchors, lighten his ship and heave her off by purchase over purchase; we do not consult the carpenter. Mr. Reed says,—"The men who will have to design for our Navy will never be free to design the best ships which can be provided until an improved education of the whole naval service unbinds the hands of the *scientific servants* of the Admiralty."
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> Who are the scientific servants? Are the men who designed the iron-bound monsters at the expense of half a million each; which have every bad quality, which can neither sail, wear, nor stay better than a coal barge, and which roll and pitch like maniacs owing to the weight of their armor, and which are certain to founder if called upon to face a very heavy gale? Are the servants scientific who stow their ballast on empty cells, thereby preventing a ship righting herself if she heels over 33 deg. under canvas, and which makes her capsize keel uppermost, according to the simple law of gravitation which impels the vacuum to the surface? Was the servant scientific who reduced a ship's ballast 300 tons, and put a corresponding weight of iron on the upper works, boasting he had retained the same line of immersion without calculating the loss af stability, and did not the Admiralty listen to him like countrymen to a mountebank, and reward him with a grant of money?
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> If a Greenwich College could diminish the frightful excesses and expenditure in the last eight years in the building department, for which the House of Commons demanded an investigation, which was checkmated by sending a distinguished admiral to the Cape of Good Hope; if it could instruct the scientific servants in the mysteries of their vocation, and convert the simple landsmen in Charing-cross into naval oracles; if it could make young officers seamen by inspiration, then I should agree with Mr. Reed that a Greenwich College would be most desirable.
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> As for the junior officers nothing but a sailing ship can educate a seaman. If a midshipman loses the precious years from 14 to 17 in a steamer he will be too old and proud to learn his profession, and when later in life he is sent to take command of a prize ship under canvas in war time he will look very foolish in half a gale of wind.
>
> If any man will take the trouble to think, he must be convinced that no ship of any size, no armor *clypei septemplicis*, no guns of 25 tons can compete with an iron-cased steam ram of about 1,200 tons, invulnerable, bomb-proof, which would put five feet of cold steel under a ship's water line going 14 miles per hour. We are now building gunboats to protect the coast. One of Mr. Drake's steam rams of about 300 tons, without a gun mounted, would destroy a dozen

of them. In the next naval action history will be repeated. Romans, Carthagenians, and again the *naves rostratæ*, *alias* the Steam Ram, will carry the day. It is wonderful that the Admiralty for the last twenty years have been building their hogs in armor to defy shot and shell, ignoring the terrible attack of this superior power. It is never too late to mend. To save enormous sums of money and a waste of coal we ought to pay off all our useless monsters, and during peace to commission small ships with auxiliary screws, never to burn a coal except in a case of necessity; and then, by keeping squadrons at sea, we might improve our discipline, our seamanship, and *esprit de corps*.

The letter of Admiral Rouse was accompanied by a leader in the Times of the same date from which we take a few paragraphs.

The spirit of an English sailor of the old school, with his bluff, outspoken, uncompromising detestation of change, and his unfaltering belief that all that has been was right, is something to wonder at and even admire, if we should not care to imitate it, in these days of perpetual motion. He has observed, as we all have, with shame and misgiving, that while the cost of our vast iron-clad vessels of war is growing yearly greater, the officers of the new generation who are to be intrusted with the handling of these expensive monsters are not comparable for practical skill and shiftiness with those of Admiral Rouse's contemporaries who dominated the seas in sailing frigates in the days before either steam or ship-armor was devised. In his perception of the defects of our present system the Admiral does not stand alone; it is condemned by the ablest officers who are now in command of our fleets, by the eminent engineers who construct them—unfortunately, with still more eloquent urgency by the voice of our recent naval annals. The misadventures of the Captain, the Psyche, and the Agincourt, not to mention less serious mishaps, have startled us all, and the seamanship of the British Navy has come to be gravely questioned.

Let us compare Admiral Rouse's remedy with Mr. Reed's.

The latter is dwelling on the custom of sending young boys to sea with necessarily imperfect training, and of promoting them to the higher grades, though in the meantime they have had no opportunities of scientific instruction. He asserts the consequence is that very few of the officers who command our costly iron-clads at the present day know any thing of the construction or the qualities of those gigantic boating masses. Admiral Rouse admits this fully, but he superadds a charge at least as serious; he alleges that few or none of our modern naval officers who spend the years of their apprenticeship to the sea on board a steamer, and who "worship the boiler whenever they are in a scrape," do know or can know any thing of real seamanship. Mr. Reed says that the study of the principles of shipbuilding is unknown among the officers of our Navy, and that accordingly, few of them can handle an iron-clad. Admiral Rouse says that the study of the winds and waves is neglected by them, and that not many of them can sail a frigate. Mr. Reed demands a Naval University to teach officers the theory of navigation as applied to the vast masses of iron now afloat under our flag. Admiral Rouse would get rid of these "useless monsters" altogether, would, during peace, commission small "ships with auxiliary screws," and "never burn a coal except in case of necessity." Here we have the ancient and the modern spirit in contrast and juxtaposition. The former, obstinate and often illogical, but with a certain rude and not unjustified faith in practice, deserves our respect, for it was this spirit which won us, in old times, our naval supremacy. The latter may be over-bold and presumptuously contemptuous of the past and all its belongings; but it is the spirit of progress, and on its guidance we have to depend for the maintenance of the renown we achieved in the earlier and darker time.

On the 20th of March, 1871, Capt. James G. Goodenough, R. N., read a paper before the Royal United Service Institute, on the Preliminary Education of Naval Officers, from which we make extracts.

I should be guilty of an absurd and forced indifference to what is passing around me if I were not to say that an impression now exists very generally in the service, that the views which finds most favor with regard to the training of the officers of Her Majesty's Navy is, that the naval officer should be taught young; that he should be made to devote himself to the details, and nothing but details of his profession from boyhood to youth, and from youth to middle age, and that somewhere behind middle age and old age, he should be deemed to be warrant, and be thrown away a pensioner on the country's gratitude, unfit even to have a voice in the guidance of the affairs of the service to which he may have been an ornament. This impression is doing much harm in all directions.

It is weakening the desire for knowledge and self-improvement in naval officers; it is tending to narrow and circumscribe the idea of responsibility of a naval commander for all things coming within his ken, and to lower his conception of his own position from that of a representative of his country in all parts of the world, an agent of her policy, and a guardian of her commerce, to that of being a mere executing tool, whose only argument is force.

The warning which I should give, and it contains the whole case, is this,—that while all other circumstances of life at sea have changed considerably in the last thirty years, the preliminary training of our officers has not changed in its main features. It is not merely that our material, whether in ships or guns, steamships or canvas, has changed. It is not only that our material has become far more complicated than of yore. If that alone were the case, the system of a former age might supplant the wants of the day. No! the change whose bearing we have failed to acknowledge, even though we may have perceived it, is this, that while formerly the conduct of ships at sea, their discipline, and the handling of their material generally, was based on the experience obtained in the practical individual lives from early years, and on an acquaintance with external phenomena and internal details, which were not reduced to laws or elevated into systems; now, we do possess rules and laws, which greatly reduce the value, if they do not quite supersede, the practical experience of a single life. In every one of the varied practical duties of a sea officer, this is the case, whether in navigation or in discipline, in artillery or in manœuvring; and I say that this constitutes the great change in a sea life to which we have made no corresponding advance. I say that although those laws and systems exist, we still continue to let the details which they include be painfully and only practically acquired by experience, instead of methodically teaching the principles on which they are based.

The principles on which I consider that that education should rest are these: *First*, that a distinction should be made between the period of education and that of special training. *Second*, that special training should be the business of the Government, while education should be left to the care of the parents, at the ordinary schools of the country. *Third*, that the handling of ships' sails and boats, and the principles of command should be methodically taught, instead of, as at present, being left to chance observations and the accidents of service. *Fourth*, that the young officers under training in schoolships should have no command, except over each other, and should count no sea time; and that on entering the service afloat in sea-going ships, they should become at once, in some measure, responsible officers, though liable to future examinations, and to produce evidence of having done work after leaving the training-ships. *Fifth*, that in order to discourage cramming, all entrance examinations should be confined, as far as possible, to the subject of study at advanced public schools, and that every candidate should be required to bring with him certificates of a year's good conduct from his last school.

I wish to see a distinction made between the education and the special training of naval officers. I do not pretend to give the precise age at which this distinction should be made. It will necessarily differ with different boys, and I would therefore have a two years' limit to the age of entry instead of one. My opinion is, that special training should begin at from 14 to 16, and that it should be continued from that age for three years; that is, from an average of 15 to an average of 18 in the college and sea-going training ships.

I should wish young officers to proceed thence to the ordinary service afloat, and after two years' service in a sea-going ship to be admitted to pass an examination for lieutenants.

The examination for entry, which under the system I propose, would be at the average age of 15, should take place in November of each year, and should be arranged, as far as possible, so as to comprise subjects which do not require special cramming, but are taught generally in our public schools, omitting some, such as Greek, of which no further use or notice would be made in their future career, and substituting French, or another modern language in lieu.

The college would then open for the cadets on the 1st of February, and and while indoor studies of navigation, nautical astronomy and modern languages occupied the mornings, the afternoons should be devoted to practical seamanship until the first of May, when they should embark in a corvette, especially set apart for their instruction, until August.

During these four months they should perform every practical duty of their profession with their own hands, under instruction, with plenty of time, and with patient, steady instructors, and at the end of their cruise, after an inspection by the governor of the college, they should strip and clear their vessel before proceeding on a summer holiday.

During the cruise they should not only learn to take and work their own observations for the position of the ship by the ordinary known methods, but should also study the pilotage of the coast of England, whenever visited.

After the vacation they should again rig their vessel, and until the end of October should have instruction in rigging, masting, and so on, while the weather permitted, as well as continuing to exercise in boats. November and December being devoted to indoor studies and examination. This would complete the first year of training.

The second year would begin as the first, with indoor studies in the morning, the advanced seamanship class of the afternoon, alternating with gunnery instruction classes until May, when the second class would embark in a steam corvette, and in addition to the study of seamanship, as in the first year, would join that of steam machinery. While the cruise of the first year would have been on board a sailing corvette, and on the south coast of England generally, that of the second year should have been extended to the coasts of the United Kingdom and western coast of Europe; and while the sailing corvette should be manned by steady old seamen, and no attempt should be made at quickness of manœuvre, the steam corvette for the second year should be manned by active young trained able seamen, and all manœuvres should be performed together, as in actual practice in man-of-war, the young cadets under training working a mast.

At the end of this cruise, they would not only strip their vessel, but would also take to pieces the principal parts of the machinery, before the summer holidays and after inspection.

On recommencement of term in October, indoor studies should again be taken up, and the final examination for the rank of midshipmen should take place in December, the average age of the young officers being now 17 years.

I should now reassemble the midshipmen on February 1st, either on board the gunnery ships or in a special ship attached to the college, for a three months' course in practical gunnery, after being examined in which, they should be discharged into a full-rigged, full-manned frigate for final instruction in the duties of an officer, under selected captains, commanders, and lieutenants. They should here alternately take the duties of officers of tops, officers of boats, officers in charge of a particular mast, and in rotation as officers of the watch, under the care and guidance of a lieutenant of each watch, while lectures and exercise in manœuvres of ships and boats, of heavy and field guns, of small-arm drills and landing parties, should be systematically taught them. At the end of this cruise, which should extend to the Mediterranean, an examination in seamanship should take place, and the midshipmen would be discharged into the service afloat, at an average age of 18 years, where they would serve as midshipmen for one year before examination (as now) for sub-lieutenants.

Thus, the whole course of training would be two years at college, and in training corvettes as cadets, and one year's training in practical gunnery, and instruction as an officer in various duties, with the rank of midshipman, performing all the duties of a subordinate officer, at the conclusion of which an examination should take place in all the subjects of the profession, whether at home or abroad. This preliminary education should be followed by the modification of the navigating class, the creation of an examination for the rank of lieutenant, and other changes in rank.

Military Education in France; Part I. of Military Schools and Courses of Instruction in the Science and Art of War in different countries. By Henry Barnard, LL.D., late U. S. Commissioner of Education. Pages 7—276.

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